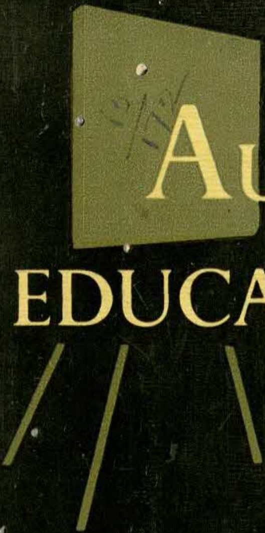

AUDIO-VISUAL EDUCATION IN INDIA

S. K. CHAKRABARTI

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STATE INSTITUTE OF EDUCATION
BANPUR

AUDIO-VISUAL EDUCATION IN INDIA

By

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WITH A FOREWORD

By

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DAS GUPTA & CO. (Private) LTD.
54-3, COLLEGE STREET, CALCUTTA

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PRICE Rs 12.50

Printed by S. N. Guha Ray at Sree Saraswaty Press Ltd
32 Upper Circular Road, Calcutta-9

FOREWORD

Audio-Visual Education is a comparatively new movement in our country but it has a very valuable contribution to make in developing good educational techniques. In recent years, its concept as well as its scope have been widened considerably and new instruments have been pressed into its service. Many of our teachers, however, are not fully aware either of what is being done or what can be done, through these aids, to make the process of learning more intelligent, interesting, and firm. This book by Mr Chakrabarti, who was a valued colleague in the Ministry for a short period, provides a brief introduction to the whole field, explaining the objectives of audio-visual education, the various types of aids employed, their special role and the conditions under which they can be used with maximum advantage. It is not a book for the specialist but for the ordinary teachers who would like to have a general view of the movement so as to participate intelligently in working it out in his or her own institution. I hope it will receive a well deserved welcome.

I should like to add a word of special commendation for the excellent get-up of the book. It is a welcome oasis in a desert of many drab, undistinguished publications.

K. G. SAIYIDAIN,
Educational Adviser to the Government of India

Ministry of Education
New Delhi
15th April. 1957

PREFACE

The case for the increased use of audio-visual aids in all levels and fields of education in India has been established, but the number of schools making proper use of these aids is disappointingly small. Therefore, under the Second Five-year Plan there is provision not only for the supply of equipment but also for the training of teachers in audio-visual methods. Teachers and social workers must know how to make the most effective use of the various audio-visual aids particularly the simpler ones at their command. The aim of this book is to help them acquire this knowledge.

The contents of the book are based mainly on the author's study in the University of Leeds of the uses of audio-visual aids in education and on the lectures and demonstrations given by him in the Audio-Visual Educational Seminar organized by the Ministry of Education in 1954. He has had unusual opportunities to try out most of the aids mentioned in this book in a variety of institutions in this country—nursery and K.G., primary, secondary, and social.

For assistance in providing illustrative material for the book, grateful acknowledgement is made to the Audio-Visual Section of the Ministry of Education, Government of India, and to the following persons: Shri P. K. Nair of General Radio and Appliances (Private) Ltd, Calcutta, Mr Alex Gleeson of the United States Information Services,

Calcutta, Shri D. Sen and Mrs Margaret Fraser-Casey of the British Information Services, Calcutta, and Shri A. K. Seal, Senior Instructor, Social Education Organizers' Training Centre, Belur Math.

The author appreciates also the valuable suggestions made by Shri P. D. Khera of the Ministry of Education in connexion with Appendix A of the book. Thanks are also due to Shri Jibapriya Guha of Sree Saraswaty Press Ltd for his keen interest in the book and for many helpful suggestions.

Finally, thanks are due to the author's wife, Mukul Chakrabarti, Labour Officer, Government of India for help in selecting audio-visual materials on labour welfare and for careful and constructive criticism of the manuscript in every stage of its development.

March, 1957 S.K.C.

CONTENTS

PAGE

CHAPTER I

DEVELOPMENT OF AUDIO-VISUAL EDUCATION IN INDIA 1

CHAPTER II

WHAT ARE AUDIO-VISUAL AIDS ? 7

CHAPTER III

AUDIO-VISUAL AIDS ARE NOT A NEW THING IN EDUCATION 10

CHAPTER IV

CONTRIBUTION OF AUDIO-VISUAL AIDS TO LEARNING 13

CHAPTER V

MAIN POINTS IN USING AUDIO-VISUAL AIDS .. 17

CHAPTER VI

SOME SIMPLE AUDIO-VISUAL AIDS AND THEIR POSSIBLE USES IN EDUCATIONAL INSTITUTIONS IN INDIA 23

CHAPTER VII

SOME SCIENTIFIC AUDIO-VISUAL AIDS AND THEIR POSSIBLE USES IN EDUCATIONAL INSTITUTIONS IN INDIA 73

APPENDIX A

SOME AUDIO-VISUAL MATERIALS FOR USE IN DIFFERENT LEVELS AND FIELDS OF EDUCATION 111

APPENDIX B

BIBLIOGRAPHY 129

CHAPTER I

DEVELOPMENT OF AUDIO-VISUAL EDUCATION IN INDIA

AUDIO-VISUAL AIDS ARE NOW RECOGNIZED IN INDIA AS EFFECTIVE TOOLS IN ALL LEVELS OF EDUCATION

THE case for an increased use of audio-visual aids in all levels of education, pre-primary, primary, secondary, university, and adult has been established beyond a doubt. They are being recognized as effective tools in other fields of national reconstruction as well such as health, agriculture, and community development. Many good schools now possess 16 mm sound projectors, filmstrip projectors, and radio sets. In Madras, according to a recent publication of the Ministry of Education, there are 338 schools with 16 mm projectors and 575 schools with radio sets. In Bihar 75 diascopes and 282 radio sets have been supplied to schools on subsidy basis. In Delhi during 1954-55 the Mobile Cinema Van of the Ministry of Education arranged 340 film shows in schools and social institutions. In Bombay in 1953-54 visual aids exhibitions were held for the benefit of primary and secondary school teachers and students. In Uttar Pradesh a State Board of Audio-Visual Education has been set up and the film section of the Education Department has produced a number of films and filmstrips. In Orissa and West Bengal the Education Directorate maintains mobile audio-visual units and film libraries.

Many teachers' training institutes have introduced Audio-Visual Education as one of the compulsory subjects of study. The Central Institute of Education and the Government Training College at Jullunder have experimented in the production of cheap filmstrip projectors and epidiascopes.

The recent development of audio-visual education in our country can be given briefly. The subject was considered for the first time by the All India Educational Conference held in January 1948, and a few months later the Government of India appointed a Committee to examine the problems of visual education in different levels of education. In April 1949 a Press Note was issued encouraging the production of educational films. About 1950 film societies and visual education centres were also organized by private institutions. In September 1950 the "Visual Education" (the magazine of the National Committee for Visual Aids in Education in Great Britain) published the activities of the Gosaba Visual Education Centre in West Bengal. It reported: "A Visual Education Centre recently started at Gosaba, the headquarters of a model agricultural estate set up by the late Sir D. M. Hamilton in Bengal, screened about 60,000 feet of British, American, and Indian films in four months. Films shown included Fenlands, Home and School, Your children and You, Instruments of the Orchestra, and Student Nurse... The Visual Education Centre hopes shortly to be able to provide films on geography, science, and hygiene for the school children.

About 5,000 families are settled on the Estate which covers 30,800 acres. The children are being educated at a central high school and a number of junior schools on the Estate. The education of the parents, however, is a more difficult problem. Instruction must be arranged so that it does not interfere with their occupations and home duties and it must be attractive enough to interest them after a hard day's work in the fields. Visual aids have been the most successful solution so far. Special shows are given for the women regularly. These are usually preceded by explanatory talks as very few members of the audience have a knowledge of English".

THE NATIONAL BOARD FOR AUDIO-VISUAL EDUCATION—ITS FIRST MEETING

In 1951 an All-India Conference on Audio-Visual Education was organized on the occasion of the visit of the famous audio-visual expert Prof. T. L. Green. The Conference examined the various aspects of audio-visual education and showed the lines for subsequent development of the subject. The National Board for Audio-Visual Education was set up in 1952 and its first meeting was held in May, 1953. Amongst its important recommendations were the establishment of State Visual Boards, the production of educational films by the Films Division, the production of non-projected visual aids, and the use of aural aids in schools.

The Audio-Visual Educational Seminar-1954—Staff and trainees
(Courtesy of the Ministry of Education, Government of India)

TWO SEMINARS ORGANIZED BY THE GOVERNMENT OF INDIA

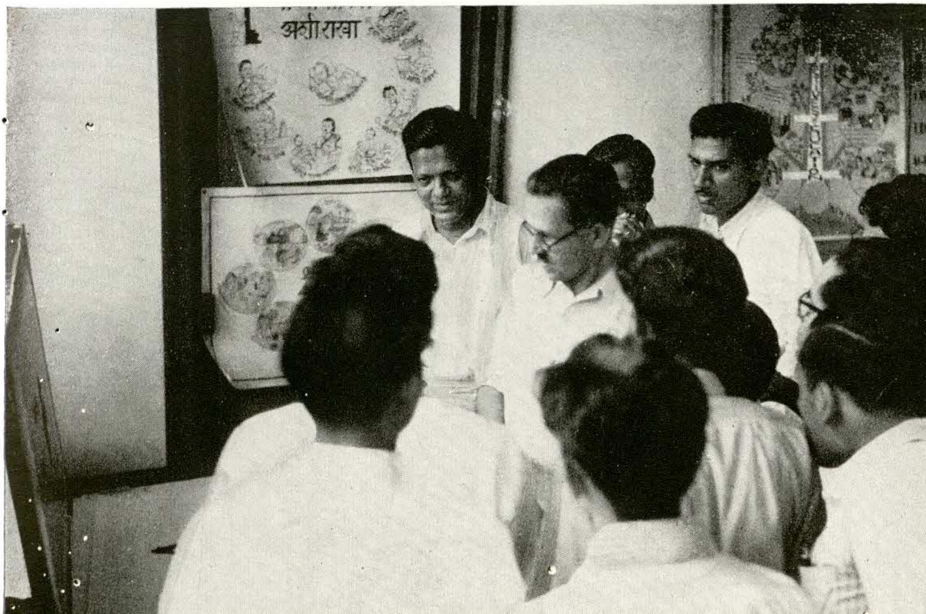
Two seminars were organized in implementation of the Audio-Visual Scheme of the First Five-Year Plan. The first, organized by the Ministry of Education, was held at Delhi in 1954. Thirty educationists from different State Governments studied and discussed the theory and practice of audio-visual education. The second seminar on similar lines, organized jointly by the Governments of India and Australia under the Colombo Plan, was held at Lucknow in November, 1955.

AUDIO-VISUAL EDUCATION IN THE SECOND FIVE-YEAR PLAN

The audio-visual education in India is expected to take a big stride forward during the Second Five-year Plan in both quantitative and qualitative senses. The Plan includes schemes not only for greater supply of equipment and expansion of film and filmstrip libraries but also, what is more important, the training of teachers in the making of simple aids and in the proper use of these aids as well as of the scientific ones.

The National Board for Audio-Visual Education in India in its second meeting held in May 1955 under the chairmanship of Shri K. G. Saiyidain, now Secretary to the Government of India, Ministry of Education examined the

Shri K. G. Saiyidain, Educational Adviser to the Government of India examining charts and posters prepared by the trainees in the Audio-Visual Educational Seminar-1954 (*Courtesy of the Ministry of Education, Government of India*)



schemes for the development of audio-visual education proposed for the Second Five-year Phan and approved them. Some of the important schemes to be implemented are:

(*i*) Establishment of State Visual Boards

(*ii*) Establishment of Film and Filmstrip libraries on a State-wise basis

(*iii*) Introduction of Audio-Visual Education in Teachers' Training Institutes

(*iv*) Supply of Radio sets to High/Higher Secondary Schools

(*v*) Supply of Audio-Visual Education Mobile Vans to all districts

(*vi*) Publication of a Periodical on Audio-Visual Education

(*vii*) Production of 35 mm filmstrips

(*viii*) Research in the evaluation of films in education in co-operation with some select institutions

(*ix*) Encouragement to private producers in the production of visual aids and equipment.

CHAPTER II

WHAT ARE AUDIO-VISUAL AIDS ?

THE EXPRESSION 'AUDIO-VISUAL'

THERE should be an understanding now of the expression 'audio-visual'. The expression 'audio-visual' has been preferred to 'visual' all through the book not simply for the importance given today to such aids as sound films, recordings, and radio broadcasts, but for the fact that all aids, whether primarily visual or aural, can be effective in the classroom mainly through the two senses—hearing and sight.

ELIMINATION OF SOME MISCONCEPTIONS ABOUT AUDIO-VISUAL AIDS

It would be well now to remove a number of misconceptions about audio-visual aids.

Audio-Visual aids are not concerned only with films or filmstrips

First, it should be noted that audio-visual aids are not concerned only with films or filmstrips. These aids are no doubt of great importance, but they are by no means the only ones. There are many other audio-visual aids besides them as shown in the following list:

the blackboard, the magnetic blackboard, the bulletin board, the flannel board charts, posters, diagrams, graphs, cartoons, maps, globes

photographs, pictures, paintings, flash cards, models, objects, specimens

the diascope, the episcope, the epidiascope, the micro-projector, the filmstrip projector, the film slide, the film

tape recordings, radio, television, the gramophone, musical instruments

dramatics, pantomine, puppet show, shadow play, journeys.

The importance to be given to films and filmstrips should not dwarf the simple aids mentioned in the list above, e.g., the blackborad, the bulletin board, pictures, charts, maps or models, which to many teachers may be of far greater moment and of easier manipulation. Proper use of these aids should, therefore, form an important part in the training of teachers.

Audio-Visual aids are aids to learning rather than to teaching

Secondly, it should be known that audio-visual aids are aids to children rather than to teachers—aids to learning, rather than to teaching; but this does not mean that audio-visual aids lighten the work of teachers. When a teacher uses these aids he needs more planning and preparation than when he takes a lesson with the help of a text-book, but his additional labour is always rewarded with more effective learning on the part of his pupils.

Audio-Visual aids are but means to an end

Thirdly, it is stressed that audio-visual aids are but means to an end. "The educative process is a spiritual interaction between personalities: not merely a matter of communication by a teacher to a pupil. The teacher is always more important than any apparatus he uses; indeed the apparatus is of value only through the use the teacher makes of it, and the worth of that use depends not so much on the dexterity of the teacher or on his skill in manipulating the apparatus as on his sympathy with his pupils, his interest in their problems, his knowledge of their difficulties, his own sense of values".[1]

Audio-Visual aids cannot replace text-books

Finally, we should be on guard not to over-estimate the importance of audio-visual aids in general. We must not, for example, think that audio-visual materials can replace text-books or that earlier teaching methods were all wrong or inefficient. Reading shall always remain, though it may often be more effective and pleasant through a proper utilization of these aids.

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[1] A Report of the Advisory Council on Education in Scotland—1948

CHAPTER III

AUDIO-VISUAL AIDS ARE NOT A NEW THING IN EDUCATION

VISUAL AIDS IN ANCIENT INDIAN EDUCATION

ALTHOUGH we hear so much of audio-visual education today, visual aids though not scientific visual aids were in use in old days in India as well as in other countries. Primitive men certainly knew how to convey their ideas through drawings and symbols long before they developed a vocabulary to express them orally. Even in formal education in ancient India visual aids played their part. In Vedic schools diagrams drawn on palm leaves were used by teachers to explain to the pupils the rules for the construction of altars. Amongst the ruins of Takshashila, the well-known centre of learning in ancient India, some rooms have been found with beautiful carvings illustrating some incidents of the history of the country which show clearly the importance which Indian educators attached to visual aids in those days. Similar carvings illustrating the life and teachings of the Buddha have been discovered amongst the ruins of the ancient Indian University of Nalanda.

VISUAL AIDS IN EARLY WESTERN EDUCATION

The great educators of western countries—Erasmus, Comenius, Rousseau, Pestalozzi, and Froebel—stressed the need for visual aids in the teaching of young children. The Dutch scholar Erasmus (1466-1536) was against memorization as a learning method of children, and he urged that children should learn through stories, pictures, and games. Johann Amos Comenius, a bishop and teacher in Poland, prepared for the first time an illustrated text-book *Orbis Sensulium Pictus* (the world of sense objects—usually known as *Orbis Pictus*). About a hundred and fifty pictures make up the book, each being the topic of a lesson. Most of the topics deal with the practical aspects of everyday life such as gardening, making bread, and so on. In the preface to the book written more than three hundred years ago we find a number of statements which may well form the basis of the modern methods of visual instruction:

(*i*) "Let it be given to children into their hands to delight themselves withal as they please, with the sight of the pictures, and making them as familar to themselves as may be, and that even at home before they be put into school".

(*ii*) "Then let them be examined ever and anon (especially now in school) what this thing or that thing is, and is called, so that they may see nothing which they know not how to name and they can name nothing which they cannot show".

(*iii*) "And let the things named be showed, not only in the pictures but also in themselves; for example, the parts of the body, clothes, books, the house, utensils, etc."

(*iv*) "Things rare and not easy to be met withal at home might be kept ready in every great school, that they may be showed also, as often as any words are to be made of them, to the scholars. Thus at least this school would indeed become a school of things obvious to the senses, an entrance to the school intellectual."

Though Comenius stressed the importance of pictures in the education of young children, he warned against making education merely pictorial. Children must know that pictures stand for actual objects. He suggested that schools should provide experiences not usually available to children in their homes through pictures and other aids.

Jean Jacques Rousseau (1712-1778) was so much against the verbalism of his day—the memorizing of words without understanding—that he said "Take the reverse of the current practice and you will almost always do right".

Rousseau's advice was followed by Johann Heinrich Pestalozzi (1756-1827) who strongly advocated that instruction should be based on sense perception. Arithmetic should be connected with the realities of life. In every occupation of life Pestalozzi insisted on an intelligent observation of common objects of nature.

From the above, it can be safely concluded that though in earlier times there were no such things as scientific audio-visual aids, educators in those days were always in favour of pictures or of simple visual aids.

CHAPTER IV

CONTRIBUTION OF AUDIO-VISUAL AIDS TO LEARNING

AUDIO-VISUAL AIDS EDUCATE CHILDREN FOR LIFE IN THIS MODERN AGE

IN old days life was a much simpler affair. Children then could learn a lot of things through direct experience. They had direct experience in spinning, weaving, agriculture. But what a change has come upon us today on account of the development of science ! The modern society is a very complex one, and schools can educate children for life in this society only through improved methods of instruction using the variety of audio-visual aids which science has placed at their disposal. Indeed these aids play an important part in our daily lives today. "The newer types of magazine, the poster on the hoardings, the film in the cinema have all used the picture to convey information, to express ideas, and to rouse feeling. It was the unanimous testimony of our witnesses that it would be a great pity if in educating our young people, in school and out of it, to play their part in this modern age we did not make an increasing and more effective use of visual aids. Visual aids are attractive. They can make schools not only more efficient but happier places. They can help to increase knowledge, rouse interest and even evoke worthy emotions and enrich the imagination of our young people''.[2]

AUDIO-VISUAL AIDS MOTIVATE THE CHILD'S LEARNING BY AROUSING HIS INTEREST

Again, one of the most important changes that have occurred in this century is the increasing importance given to the study of the child in place of the knowledge he should be acquiring. Even a few decades ago the teaching of a subject was considered from the point of view of the adult, not by whether it was appealing to the child or not. Learning was then a difficult business. But what a change has taken place in educational practice ! How much attention is now being paid to the learning activity of the child ! We now know that effective learning depends to a great extent upon the child's having a strong motive for learning as well as upon his experience being made meaningful and purposeful for him.

Audio-visual aids motivate the child's learning by arousing his interest in a number of ways.

In the first place, the aids are something new for children. They provide a change from the usual activities of school, such as reading, writing, listening. The novelty of the aids makes them attractive to pupils.

Secondly, the aids provide a change in the atmosphere of the classroom. When a film or a filmstrip is screened, children talk, laugh, question, and comment upon freely as they do outside the classroom. The attitude of the teacher is also very friendly. This pleasant and natural atmosphere contributes greatly to learning.

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[2] A Report of the Advisory Council on Education in Scotland—1948

Thirdly, audio-visual aids are comparatively easy to understand and so they interest the children more than the description of anything through a talk interest in which can only depend on their power of understanding, knowledge of the language, and previous learnings.

In the fourth place, many of these aids give children opportunities to do something. An opportunity to touch a model, press a button, or turn a crank gives an added appeal.

Audio-Visual Aids Make The Child's Experience Meaningful

Audio-visual aids make the child's experience meaningful. "Because audio-visual materials supply a concrete basis for conceptual thinking, they give rise to meaningful concepts—to words enriched by meaningful associations. Hence, they offer the best antidote available for the disease of verbalism."[3] Under certain situations verbalism is quite helpless. Think of a teacher verbally attempting to give his students an idea of an animal which they have not seen before. He describes its height, colour, head, legs, ears and other characteristics, but none of the children is able to form a correct idea of the animal. But how accurately could they form an idea of the animal by actually seeing it. It follows, therefore, that direct experience is the basis of all effective learning. "It is the rich, full-bodied experience that is the bed-rock of all education. It is the purposeful experience that is seen, handled, tasted, touched, felt, and smelled. It is the unabridged version of life itself."[4]

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[3] E-Dale—Audio-visual Methods in Teaching

Although direct experience is in reality the basis of all effective learning, yet opportunities for direct experience are very limited (they could, however, be more numerous than they are). Sometimes a real thing may be too complex, too big, too small, too fast or too slow. In such circumstances learning through a model, film, or filmstrip is much easier than learning through direct experience. A model of a factory is often more helpful from the point of view of study than a visit to its various departments and sections spread over a large area. To emphasize the key points or basic mechanisms we often make use of models from which distracting details have been left out.

Again, it is not always possible to experience directly things which are far away or not easily accessible. Many successful projects in our countries are too far away for many people to visit. The development and results of these projects can best be made known through audio-visual aids. We cannot have firsthand experience of what Tensing had to get to the top of Everest, but the famous British Information film "Conquest of Everest" has given many of us a clear idea of his outstanding achievement.

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[4] E-Dale—Audio-Visual Methods in Teaching

CHAPTER V

MAIN POINTS IN USING AUDIO-VISUAL AIDS

THE effectiveness of audio-visual aids depends upon their proper use. There is no magic about these materials—they need only careful and intelligent planning.

PROPER SELECTION

The aid should deal with the topic under study

The first and perhaps the most important step in planning is proper selection of aids. Select the best aid or combination of aids to meet your specific objectives. Always bear in mind the exact topic under study. In a lesson on hygiene, for example, the aim of the teacher may be to give pupils an idea of areas where mosquitoes breed and of effective methods for combating the insect. He selects a famous film 'The Mosquito', but his lesson fails because the picture instead of contributing meaningfully to the topic under study presents something else, e.g., the life history of the mosquito, and the effect of its poison on human blood.

The aid should not be foreign to pupils' environment

Another teacher, for example, to take a lesson on sanitation selects an excellent foreign film which covers the subject all right. The need for the provision of safe water, the protection of food and milk, the sanitary disposal of garbage, and general cleanliness of people and places are all shown in a very clear manner, but in spite of all these the lesson may not be very successful because the picture presents scenes and techniques quite foreign to pupils' environment.

The aid should be appropriate to the age and intelligence of the children

In selecting aids, the teacher should also see that they are appropriate to the age and intelligence of the children. The aids will never be helpful unless they are suitable for the average level of the children. A filmstrip may be excellent in itself, but it may be too difficult for a junior class. The excellent Bray film "Tides and the Moon" may appear too simple to post-graduate students of geography though it is so interesting and instructive to senior pupils of a high school.

The aid should not be too old or damaged

Another point of great importance in the selection of audio-visual aids is their physical quality. When films, filmstrips, pictures, charts, maps, models, etc. are new, their condition is generally satisfactory, but when they become a little old, unless good care has been taken in handling and preserving them, their condition becomes so bad that they are not worth the time and effort involved in using them, although they may be valuable by themselves. When we select audio-visual aids for learning purposes, we must make sure they are in proper condition. It is no use selecting a film if its sound track is damaged. The photographs we show to children should be sharp and clear. Broken models, torn maps, cracked slides, and too old charts lose half their value.

Too many aids should not be used unnecessarily

As different kinds of audio-visual aids are now available, there is a possibility that some teachers, particularly those who are enthusiasts, may use too many of these unnecessarily. If a teacher, for example, without any special reason shows some pictures of cocoa trees and cocoa beans after screening a film on cocoa which shows these things very well, it will be sheer waste of his time as well as of his pupils.

Simple aids if equally effective should be preferred to expensive aids like films

There is another important point in the selection of audio-visual aids. It has been pointed out earlier that simpler aids should not be neglected. A film may be an excellent aid, but where equally good results can be obtained by the use of charts, models, or still pictures, there is no reason why we should spend so much time in showing an expensive aid like a film. But where a film is considered a far more effective aid, it is worth the expense and effort involved in using it.

ADEQUATE PREPARATION

Preparation on the part of pupils

In the use of audio-visual aids, preparation on the part of pupils is of no less importance than preparation on the part of teachers. Before a film or a filmstrip is shown, children's curiosity should be roused. Specific things to look for in the film or the filmstrip should be pointed out before the aid is used. If there is any point in the film that may be confusing to the children, it should be thoroughly explained before the film is screened. A school journey may be a mere sight-seeing if pupils are not adequately prepared for it and their curiosity not properly roused. When children go to visit a ship with a preparation of what they are going to see in it—the radar in the navigating room, the fire-controlling apparatus, the anti-rolling device, the plant for distilling drinking water—the visit will undoubtedly be of maximum benefit.

Preparation on the part of the teacher

After the aids have been selected, the teacher should prepare himself. He should know what the aids teach and where they fit into his plan. No film or filmstrip should be shown to children unless the teacher has previously read the teaching notes which may be available on it and has had a preview of the film or the filmstrip. The Central Film Library of the Ministry of Education, it is expected, will soon take up the preparation of teaching notes for films which can be used in classrooms. In the proceedings of the second meeting of the National Board for Audio-Visual

1313

Education in India we find: "In order to encourage the proper use of the imported film, it is proposed that the Central Film Library should take upon itself the responsibility of preparing commentaries and notes suggesting the proper use of the film, indicating follow-up activities and other materials with which the film can be integrated. The material may assume the form of a booklet, copies of which will be circulated to all members of the library as and when they ask for a particular film. These booklets will be retained by the member institutions and constitute a reference file".

PROPER PRESENTATION

Proper presentation of audio-visual aids is as important as their proper selection. The material should be presented under the best possible conditions and in the best possible manner so that every one in the room can both see and hear in comforts. This can be ensured if four conditions are fulfilled. The equipment including the screen is a good one and in good condition. The teacher who uses it has had a thorough training in the setting up and operation of the equipment. Spares (e.g., bulbs, exciter lamps, tubes) which may be needed are at hand and in good condition. A reasonably large room with comfortable seats, adequate ventilation, suitable acoustic conditions and proper darkening devices has been secured. There might be difficulties in fulfilling the last condition in a general-purpose classroom, but in rooms where films are shown regularly there is no reason why ideal conditions should not prevail.

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Only a few months ago in a training centre near Calcutta with which I was associated the educational value of an outstanding film was largely lost on account of an unsatisfactory room in which it was projected. In the month of May about 3 in the afternoon without any provision for ventilation and all doors and windows closed and the roof of the room being of corrugated iron, the small accommodation became so hot and stuffy that those who were viewing the film (and I was not an exception) were only interested in finding out how soon the picture would come to an end.

ADEQUATE FOLLOW-UP

The follow-up varies according to the nature of the subject. Generally important points are emphasized and there is a discussion on the topic. If the teacher finds that the students have not grasped the points clearly, he might arrange for another display of the aid for a thorough understanding of the ideas. Geographical references should be pointed out on the map. If the aid used is on some crafts, the follow-up should include actual practice of techniques shown.

CHAPTER VI

SOME SIMPLE AUDIO-VISUAL AIDS AND THEIR POSSIBLE USES IN EDUCATIONAL INSTITUTIONS IN INDIA

SCHOOL JOURNEYS

School journeys enable children to experience the real world

ONE of the most valuable of audio-visual aids is the school journey though unfortunately in India many schools do not avail themselves of this aid to the extent they ought to do. A school journey may be defined as any excursion organized by teachers to enrich the pupils' experience. The great advantage of the school journey is that it enables children to experience the real world which they cannot experience through the best of books. What they learn about a mine or a factory by reading books or listening to talks in the classroom is quite different from what they learn by seeing the real things in a properly conducted educational journey.

Different types of school journey

A school journey may be of various types according to the purpose for which it is undertaken. It may be a short trip to a paddy field or a vegetable garden; an afternoon visit to a farm or a factory or a historical monument;

Guided by their teacher some junior pupils of the Surendranath Institution, Calcutta are learning about plants in a garden by this enjoyable method of discovering things for themselves.

a day's visit to a village or a town; a week's tour to historical places or to project areas. A school journey may be designed to help boys and girls to select their life work. A boy visiting a medical college or an engineering firm may become ambitious of becoming a doctor or an engineer. A girl after a visit to a college of nursing may like to take up the nursing profession.

Difficulties which restrict the number of journeys

There are three main problems in our country which restrict the number of school journeys. Though in many schools there are some enterprising teachers who are quite willing and competent to organize these activities, they do not always get sufficient encouragement from the heads of institutions particularly when they are of the old school. This difficulty, however, will gradually disappear as the educational possibilities of the school journey will be more and more realized with the general development of audio-visual education in India. The State Board of Audio-Visual Education which will give adequate representation to teachers and headmasters of schools will be set up soon, and this Board, it is hoped, will see that a minimum programme of school excursions is carried out by every recognised high or higher secondary school in the State.

There is another difficulty. School journeys cost money, and so the idea is often dropped. This difficulty also will be got over when adequate grants will be available and schools raise their own funds to supplement these amounts. A special contribution from parents can also be collected when excursions to distant places are undertaken. Children whose parents are too poor should not, however, be excluded. The poor fund which is generally in existence in our schools may be of help in such exceptional cases.

Though some schools realize well the value of educational trips, they often find difficulties in arranging for meals and sleeping accommodation for a large number of students at project centres and at many places of historic and cultural interest. The railway arrangements often cannot bring the party back home the same day. This problem, however, is now being solved by the Government Bus Transport in some States. In West Bengal, for example, the State Transport organized at cheap rates a number of educational trips this year to places like Diamond Harbour, Botanical Gardens, Government dairy farm at Haringhata, and the D.V.C. areas. It is hoped there will be a great increase in the number of schools taking advantage of these trips.

Conditions on which a successful school journey depends

Whatever the purpose of a school journey may be, the following conditions must be fulfilled if the journey is to be of maximum benefit:

(*i*) A school journey must be correlated with school work so that it does not become a picnic or mere sight-seeing.

(*ii*) The visit must be well conducted. For this careful planning ahead is necessary. After the place to visit has been decided upon, the teacher responsible should first of all study transport facilities. He should decide if the entire class or a selected group should go. If the visit is to a distant place, parents' consent should be obtained. The cost per child should be estimated and necessary money should be collected. Matters such as food and accommodation must be settled by writing to hotels long before the journey is made. There should be strict instructions to children about their dress during the journey and the things they should include in their kit. The teacher in charge should be equipped with a first-aid box. He should see that children do not get too tired and their toilet needs are attended to. It is desirable that the teacher in charge should have thorough knowledge of the things he will show to the children. In journeys to historical buildings the services of ordinary guides should be avoided.

(*iii*) The pupils must be adequately prepared for a visit. They must understand its purpose and what they can expect to learn from it. A list (preferably mimeographed) of things which can be seen on the way and at the place should be handed to each member of the group. Students should be encouraged to ask questions and to take notes.

(*iv*) There must be an adequate follow-up to find out what has been learned from a visit. Full opportunity for thorough discussion is essential. A school journey is a mere sight-seeing unless pupils understand its relationship to school work and the value of information gained.

The value of field trips in social education

A journey or field trip is an audio-visual aid of great value in social education work. If selected villagers are given an opportunity to see how problems are being solved in other areas, they not only see actual operations as they are carried out, but what is more important they become conscious of problems in their own village. The presence of visitors motivates also the people who are solving problems by arousing in them a feeling of worth and importance.

THE BLACKBOARD

A neglected school apparatus in India

One of the most important aids at the command of teachers is the blackboard, but unfortunately in India it is the most neglected of the school apparatus. When school houses are built, little attention is paid to providing classrooms with adequate blackboard space. And in many schools blackboards are not kept in the proper position and they are not kept in good repair. Erasers are not generally used, and where they exist they are either not of the desirable type or in a very neglected condition.

Importance of good blackboard work

A blackboard does not look very attractive, but when it is used properly it becomes very inspiring. It is of great importance in setting standards of neatness, accuracy, and speed, and it helps children visualize spelling. An illustration drawn on the blackboard during a lesson can restore the attention of the class. In blackboard work the teacher can, by writing and diagram, emphasize the essential points in the lesson. He can let the children see a map or a picture built up with a few quick strokes. Moreover, the blackboard is an aid which is always available in the classroom; for its use no technical knowledge or high artistic skill is necessary, no spares are to be kept at hand, and there is no wastage of time in making the room dark.

Important points in using the blackboard

The effectiveness of the blackboard as a visual aid can be considerably increased if the following points are borne in mind in using it:

(*i*) Clean the blackboard first with a clean eraser or cloth and not with the hand or fingers.

(*ii*) Write in straight rows starting at the top left corner.

(*iii*) Write only a few important points bearing in mind that the blackboard is unsuited for elaborate work.

(*iv*) Write neatly in large letters making sure that the writing is easily readable from the back of the class.

(*v*) Avoid abbreviations except those in common use.

(*vi*) Plan ahead what you will write on the blackboard, but never draw a map beforehand or by constant reference to a book, as these may give the impression that map-drawing is not a simple business.

(*vii*) Get together everything you need for the blackboard before the class begins—eraser, chalk, rulers, compasses, or any other device that may help you draw. The use of these devices is no indication of the teacher's lack of skill in blackboard work.

(*viii*) Do use a pointer to focus attention when you have drawn a map or a sketch.

(*ix*) Do stand to one side of the blackboard.

(*x*) Make sure that the blackboard is not high above the eye level of the children, it is well lighted by natural or artificial means, and that the front row of desks is at least eight feet away from it.

(*xi*) Make sure that the blackboard is serviced at least once yearly.

Materials used in blackboard construction

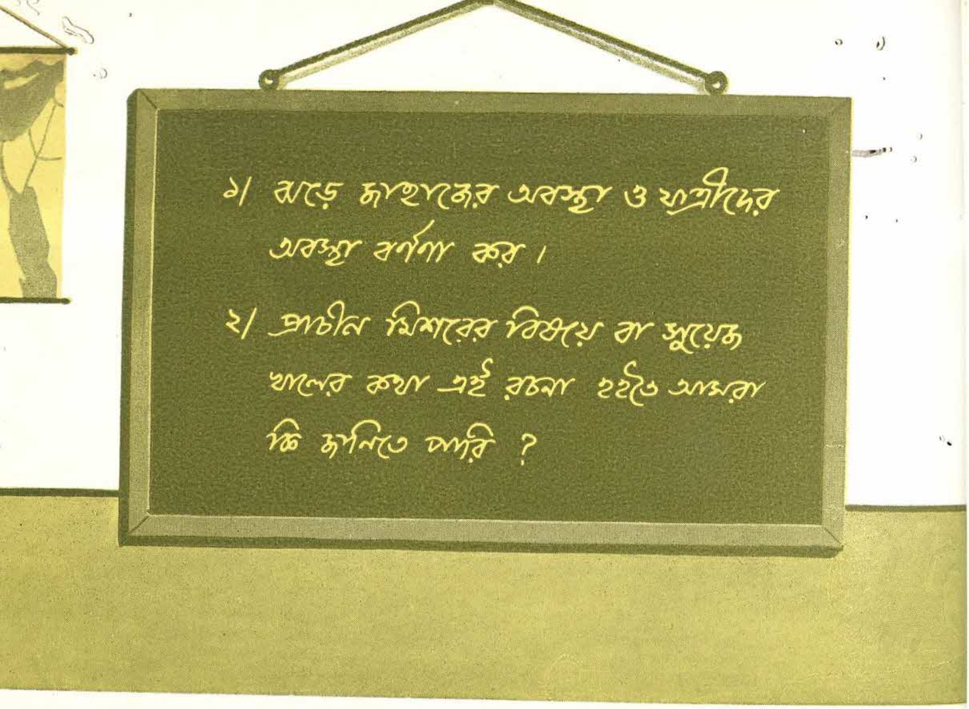
Various types of material are used in blackboard construction—wood, slate, glass, plastic, paper, and cement mixtures. Wood is the cheapest, and so it is the most commonly used material. Slate is widely used in America, but it is expensive, and it is difficult also to obtain a large size of the material. Where a wall blackboard is to be erected, the use of glass might be considered. Glass blackboards though more expensive than wooden ones give better service and last much longer. The Report (1948) of the Advisory Council on Education in Scotland says, "We were told of blackboards made of glass which were installed in a technical college some forty years ago and are still proving most efficient." Plastic surfaces for blackboards have recently been developed in Great Britain and can be obtained in different colours. A roll-up blackboard can be made of thick wrapping paper, but it does not last long and it is not easy to write on. It is, however, very easy to carry, and so social workers use it to advantage when they move from village to village conducting meetings or discussions. They can make this paper blackboard by a simple process which is given below.

Apply French polish on both sides of a sheet of wrapping paper. Make a black cream by mixing one teaspoon of glass powder and six teaspoons of lamp black in a small quantity of French polish and apply this cream to one side of the paper. When it is thoroughly dry, apply it for the second time. A round strip of wood about one inch in diameter is fastened to the two ends of the roll-up board.

Many schools in India have wall blackboards made of cement mixtures containing black colour, but they are generally unsatisfactory as they absorb moisture particularly during the monsoon period.

Yellow or olive green blackboard

In India blackboards are still black, but in America and Great Britain the black colour has given place to either yellow or olive green. The National Institute of Industrial Psychology in America of late has found evidence to the effect that a blue chalk on a yellow board causes less strain on children's eyesight and adds to the general cheerfulness of the classroom. The use of colour in America for the so called blackboard has given rise to a new term—the CHALKBOARD. The Advisory Council on Education in



১। ঝড়ে জাহাজের অবস্থা ও যাত্রীদের অবস্থা বর্ণনা কর।

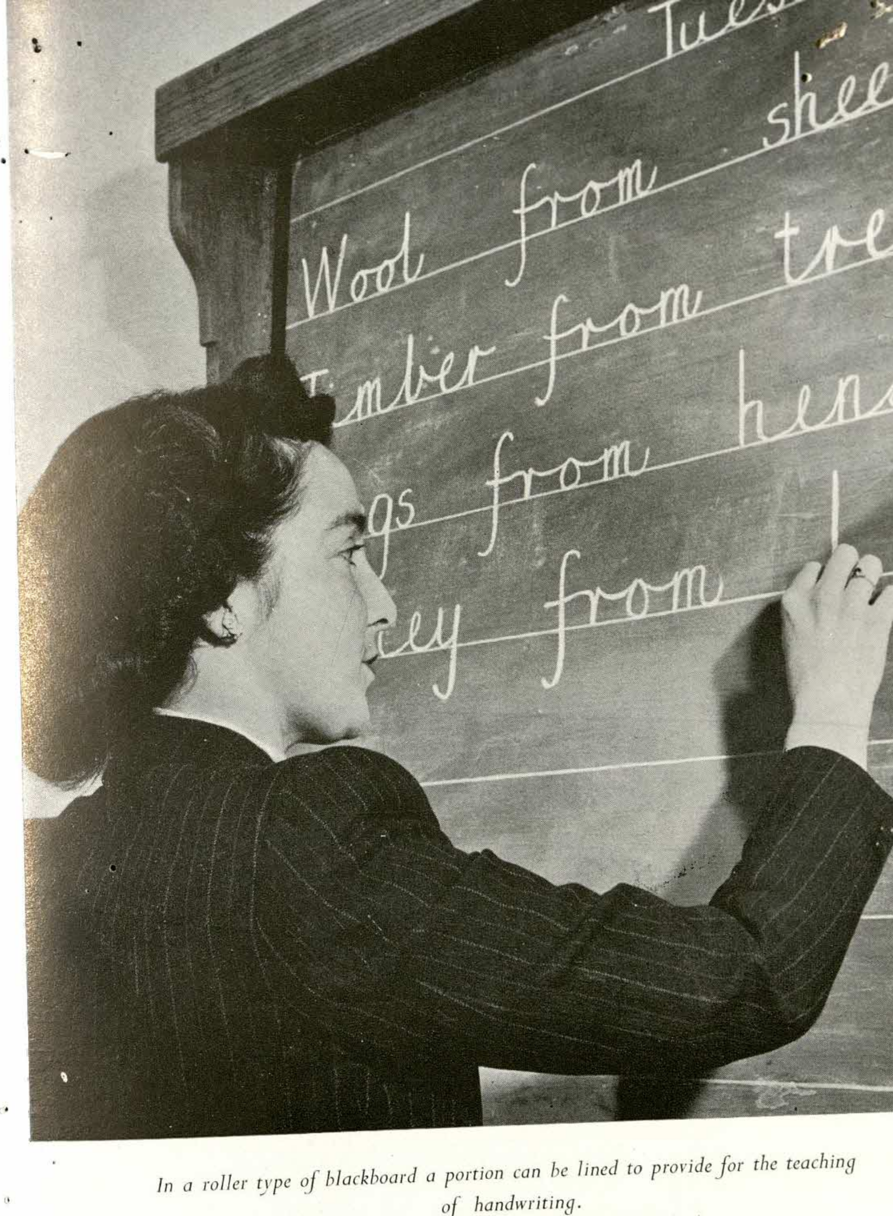
২। প্রাচীন মিশরের বিষয়ে বা সুয়েজ খালের কথা এই রচনা হইতে আমরা কি জানিতে পারি ?

Yellow chalk on an olive green surface gives the most satisfactory result.

Scotland has suggested that yellow chalk on an olive green surface gives the most satisfactory result. It may be added here that in a Nursery and K. G. School, founded by the author a few years ago, at Kulti in West Bengal olive green boards proved more satisfactory than ordinary blackboards.

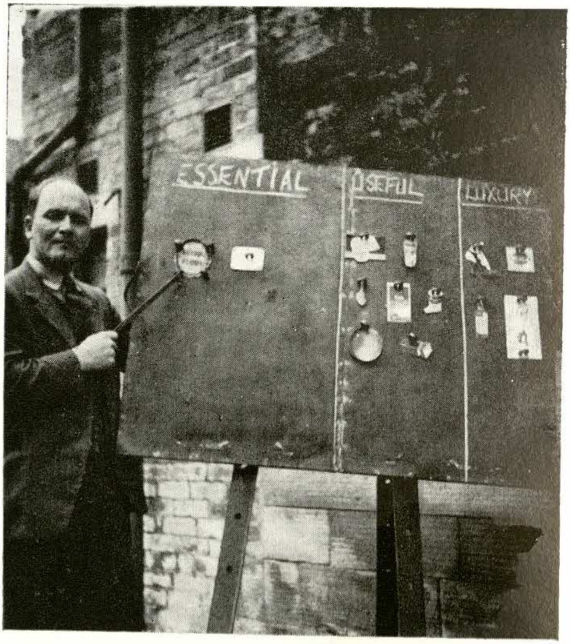
Types of blackboard

The ordinary blackboard held by an easel may be all right for the teaching of arts subjects in a small class, but it is quite unsuitable for mathematics and science. For the teaching of these subjects the roller type of blackboard with a matt surface is far better. This type of board is very common in Secondary Modern and Infant schools in Great Britain. If the roller type is used, a portion of the board



In a roller type of blackboard a portion can be lined to provide for the teaching of handwriting.

(Courtesy of the British Information Services)



A demonstration of a magnetic-blackboard lesson in the University of Leeds
(Photo by the author)

can be appropriately lined or square marked to provide for the teaching of such subjects as handwriting, elementary arithmetic, and higher mathematics.

THE MAGNETIC BLACKBOARD

The magnetic blackboard is of recent origin in Great Britain. It is extremely useful and interesting. The difference between the ordinary blackboard and the magnetic one is that the latter is made of steel on which magnets can be fixed. This board is especially interesting in the primary school because when children fix something on it as an exercise in the revision of a lesson, their creative impulse is partially aroused. They learn through an interesting activity. This board is very useful from the teacher's point of view also, because he can promptly fix pictures, charts, etc. on it with the help of magnets.

A very interesting use of the magnetic blackboard (brought by the author from England a few years ago) was made by some enthusiastic teachers of a high school in the Sundarbans who found it helpful not only in the teaching of little children but also in the teaching of subjects like science and hygiene to pupils of senior classes.

THE BULLETIN BOARD

Usefulness of the bulletin board

If properly used the bulletin board, like the blackboard, is an audio-visual aid of great educational value. The All-India Teachers' Conference on Audio-Visual Education held in July, 1956 recommends that teachers should observe the following three principles in encouraging the use of bulletin boards by pupils:

"(*a*) the bulletin board is a perpetual magazine of the class or the school, designed to give the pupils information of direct concern to them and tap their curiosity and desire for knowledge;

(*b*) at any time a bulletin board should present an aesthetic unity, a harmony in the lay-out and

The School Bulletin Board
Surendranath Institution, Secondary Department, Calcutta)

illustration of various elements that go in its making;

(c) the bulletin board should be entirely a result of the creative effort of pupils, may be under the general guidance of the teacher. It should be a work of the pupils, by the pupils, for the pupils."

The bulletin board is useful in a number of ways:

(*i*) It provides a suitable place for the display of all kinds of creative work of students.

(*ii*) It serves as a place for the display of photographs, newspaper and magazine clippings, illustrations, and small samples of products in connexion with specific lessons or topics of current interest.

No classroom is complete without an attractive bulletin board.
(Courtesy of the United States Information Services)

(*iii*) It affords a suitable place for the posting of announcements, assignments, distinctions, etc.

(*iv*) It enables children to work as a group.

(*v*) It adds to the atmosphere of the classroom.

(*vi*) It is a valuable aid to educate adults in villages.

Proper placing of the bulletin board

Like the blackboard, the bulletin board should be fitted at a suitable well-lighted (by natural or artificial means) place in the classroom. This place should be planned when the school is built. In some institutions in India where bulletin boards are in existence, only one board is generally found near the entrance to serve the entire institution, and this board also is not fixed in a suitable place. The board should be placed at the eye level of the cildren. A bulletin board designed for adults in a village should be in a convenient spot so that a large number of people can see the dispaly.

Important points in using the bulletin board

The following points should be remembered in using the bulletin board:

(*i*) Only pertinent material should be displayed.

(*ii*) The material should be arranged in a neat and orderly manner.

(*iii*) Avoid crowding of display materials.

(*iv*) The material displayed should be large enough to be seen from a reasonable distance.

(*v*) The material should be changed at not too long intervals.

(*vi*) Each display should have a suitable title.

(*vii*) Keep a good supply of drawing pins.

(*viii*) Students should often be given responsibility for collection and display of appropriate material in connexion with specific lessons.

How to make a bulletin board

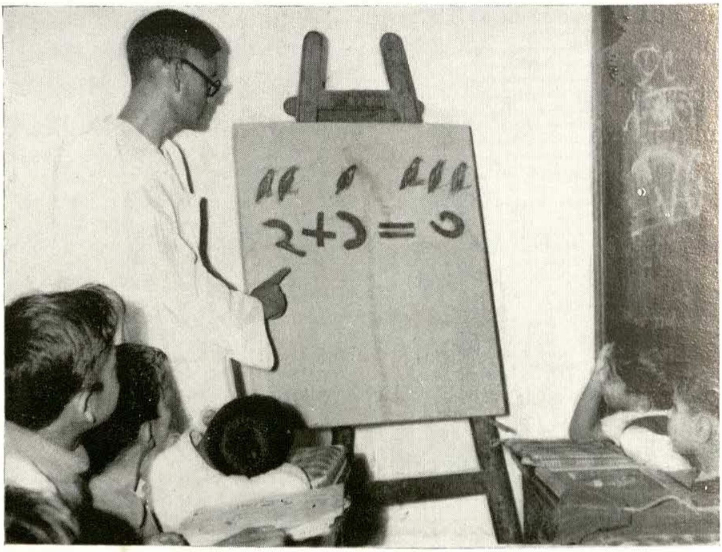
Bulletin boards are very easy to make. Make a frame of 5′×3½′ (the size may be larger or smaller according to the size of the classroom) and cover it with either plywood or fibre board. Apply a suitable paint on the board to make it attractive. Linoleum with its variety of colours and masonite board are also suitable materials for making bulletin boards.

THE FLANNEL BOARD (ALSO CALLED THE FLANNELGRAPH)

Like the magnetic blackboard the flannel board is also of recent origin in Great Britain and in the U.S.A. It is a valuable aid in many learning situations of junior as well as of senior pupils.

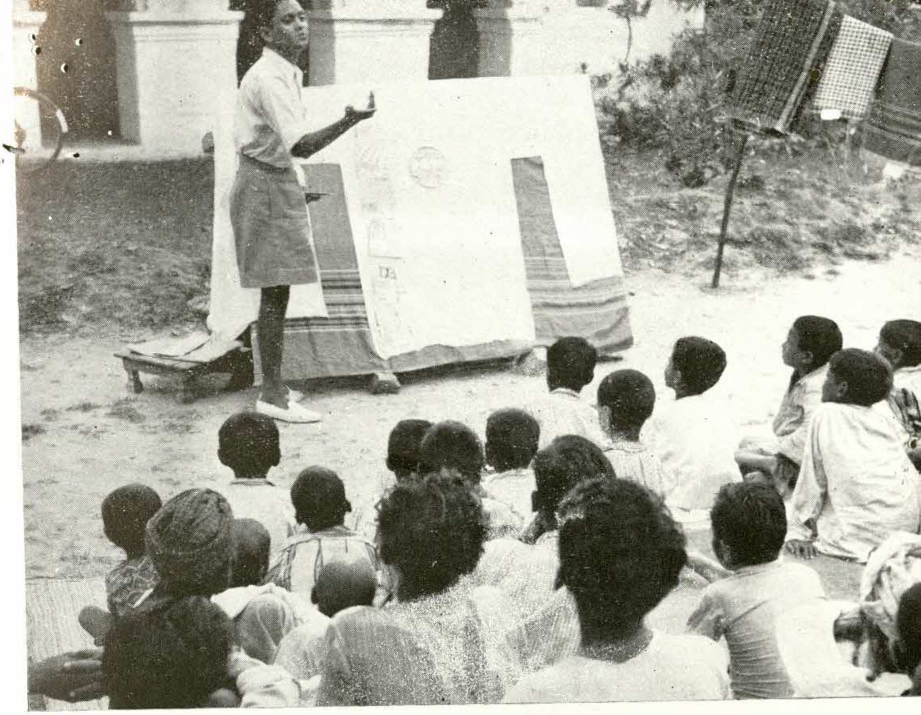
Like the blackboard, the flannel board can be used throughout a discussion, but the difference is that on a blackboard we write words or figures or draw pictures, but on a flannel board we place prepared items and remove them when needed. In the Primary School we often ask little boys and girls to fix these to arouse their creative impulse.

Flannel boards are not at all difficult to make. It is simply a piece of flannel stretched tightly over a piece of plywood or thick pasteboard. A 36″×48″ piece will do for a classroom all right. Pieces of flannel or sandpaper will stick to the board, and so small pieces of these materials are pasted on the reverse side of pictures, drawings, etc. for placing on the board. If items are cut from flannel, blotting-paper, and sandpaper, no additional rough-surfaced backing will be needed.



These attractive pictures of birds on the flannel board make arithmetic lesson real and interesting. The pictures and the figures can be quickly rearranged to change lessons.

(A junior class in the Surendranath Institution, Calcutta)



A Village Level Worker explains with the help of a flannel board new methods of agriculture to young would-be farmers in a Community Development Block near Ranchi.

(Courtesy of the United States Information Services)

In the Primary School the flannel board can be effectively used for teaching languages and arithmetic and also for story-telling and mapwork.

In the High School the board can be used in the teaching of geography, hygiene, foreign languages, and science.

In social education work flannel boards, if effectively used, can prove very helpful in communicating a lot of useful information to adults in an interesting manner. Villagers love stories when told in an interesting manner, and Social Education Organizers, if they really want to do, can prepare with little skill in drawing interesting story items for the flannel board.

A junior pupil is learning Hindi with the help of the flannel board in the Secondary Department of the Surendranath Institution, Calcutta.

MAPS AND GLOBES

Wrong approach to map reading in our schools

One of the most widely used classroom aids is the map; only with its aid can geography be properly taught and learnt. It is probably true to say that ninetynine per cent of geography can be represented on maps. With the help of a map we know exactly where a place is, how far away it is, and what lies between. Though the map is one of the most commonly used aids in the classroom, it is unfortunately the one least understood. The reason for this is that in most cases children are not helped to understand the realities behind the maps.

A simple method of introducing children to the study of maps

There is a simple and very helpful method of introducing children to the study of maps. Let the teacher place a simple object, such as a book or a blackboard eraser, on the blackboard and draw round it. When the book or the eraser is removed, a drawing is seen which is not a picture. It is a plan or map. Children should be asked to draw many such plans using a variety of available objects. The next step will be to draw a plan or map of the classroom, but it is too large to be drawn full-size. So the element of reduced dimensions will naturally arise. It is important that the map of the classroom should be drawn for some purpose. The map of the classroom must not be merely a map of the room, but a map to show something about the room. It may conveniently be 'A map of the classroom where I sit'.

The test of the map is not whether it looks nice, but whether it fulfils the purpose for which it is drawn. Neatness is good, but mere neatness is not enough. Neat and correct maps are the best. Neat maps that are wrong are worse than untidy wrong maps, because more time has been wasted on useless things.

Stages in map-drawing

There will naturally be some mistakes in the first map; so the map is to be drawn again. It is desirable that the children should not feel that they are doing the same work. This can be avoided by giving a new title to the same map, e.g., 'How I go to my seat'.

There should be no attempt at first to draw the maps accurately to scale. Before maps can be drawn in any way quantitatively accurate the idea of scale must be familiar. The familiarity is obtained gradually through lessons in map-drawing.

In the next step, the area mapped is increased, but the size of the paper remains the same. Things outside the classroom, e.g., the playground, the neighbouring street, are now drawn. The idea of scale becomes more prominent, and the children by thinking through a wall begin to acquire the ability to imagine the rest of the world.

Thereafter, the area mapped may be gradually extended. In a school at Delhi, for example, maps may be drawn to show ''How we go to the RashtrapatiB hawan', 'How we go to the Red Fort'.

Later, when the area is further extended, the children are introduced to areas which they do not know. This is another stride forward in the work—they begin to learn something new with the help of the map. The new area should be shown to the children in relation to the things they know to be real.

Errors in interpreting maps

Very often in our schools geography which is taught by means of maps is not real geography. The use of phrases such as 'the top of India', 'the bottom of Africa', 'going up the map' clearly shows that the maps only are thought of and not the realities behind them. Though these errors no doubt arise from the custom of hanging maps on walls, every effort should be made to avoid these unfortunate phrases.

Use of various types of maps

There is another undesirable practice. Although all good Secondary Schools generally have various types of map, too much attention is paid to physical-political ones and too little use is made of others. It is important no doubt to know the boundaries of a country or of administrative areas within it, and mountains, rivers, and deserts there, but the maps which show the density of its population, its climate, its vegetation, its industries are also to be studied side by side.

Some good Primary Schools make use of Pictorial Maps which are stimulating as well as informative. Some geographers, however, have frowned on these maps though many do not share their apprehensions. They have two important objections. A picture map is not a true thing whereas a map states things correctly. The use of picture maps as an introduction to map reading makes it more difficult to understand real maps.

Blank outline maps

The great usefulness of the map which can be sketched on the board by the teacher is not always realized in Indian schools. The published map is no doubt valuable, but it has so much details that it is difficult to read and understand. The outline map seems more useful than the published map. In the outline map, by the omission of all that is not required, proper emphasis can be secured for the topic under discussion. If small outline maps to be filled in by children are required, they can be obtained with the help of a duplicator or by asking children to make a pattern of the country with a pasteboard and draw round it.

Important points in selecting maps

Maps which are in use in many of our schools today are either of poor qauality or in a neglected condition. In some schools I have seen them on the floor. This is indeed most disappointing. In the general care and selection of maps, attention to the following points is helpful:

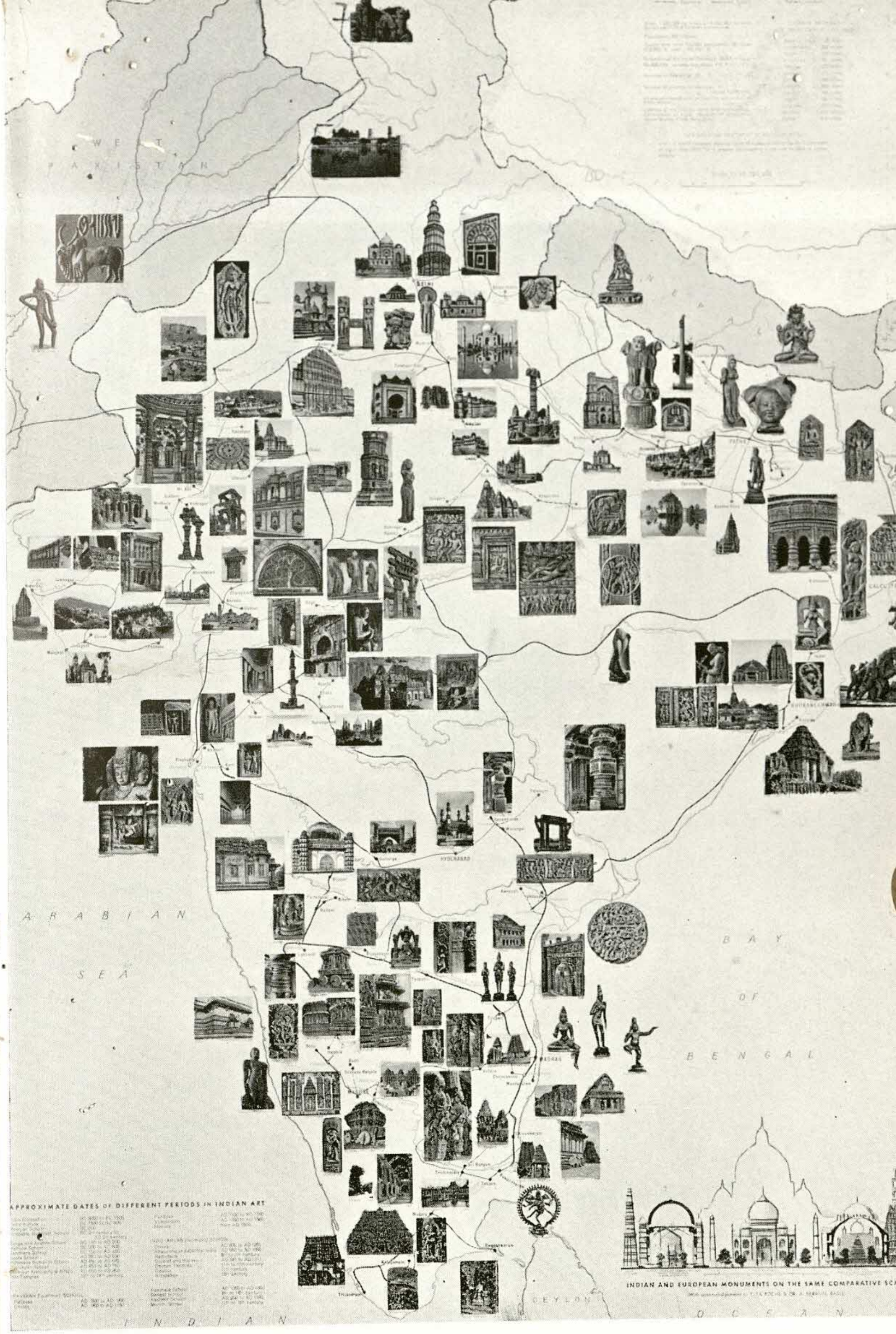
(*i*) Maps should be of matt surface. The glossy surface of some wall maps may prevent children in some parts of the classroom from seeing them clearly.

(*ii*) Maps should be simple, accurate, and clear.

(*iii*) Maps should be sufficiently large so that they can be seen clearly from the back of the class.

(*iv*) Maps should be kept in dust-proof cases.

(*v*) There should be frequent checking of maps with a view to attending to minor repairs in time.


WEST PAKISTAN
DELHI
HYDERABAD
MADRAS
ARABIAN SEA
BAY OF BENGAL
CEYLON
INDIAN OCEAN
APPROXIMATE DATES OF DIFFERENT PERIODS IN INDIAN ART
INDIAN AND EUROPEAN MONUMENTS ON THE SAME COMPARATIVE SCA

A pictorial map of India
(*Courtesy of the Tourist Office, Government of India*)

THE GLOBE

The globe is an indispensable aid

In our age in which people are becoming more and more world minded on account of air travel, the globe is an indispensable audio-visual aid above the primary classes. For some purposes the globe is superior to the flat map. With the help of the globe we can see the physical unity of the world, the relation of one part to all the rest, and the direction of one part of the world from another. Latitude and longitude and changes in time and seasons are more easily learnt with the help of the globe.

A misuse of the globe

The globe should not be used for purposes for which it is entirely unsuitable. It is wrong, for example, to show the highlands in relief on the surface of the globe. Even if the height of Mount Everest is to be shown correctly on a globe eighteen inches in diameter, it should be less than one-hundredth of an inch. "The globe is indeed a great deal smoother than the proverbial orange, and a totally wrong impression is given if there is any roughness at all on the surface."[5]

Proper type and size of the globe

Although a globe is found in most of our schools today, it is often neither of the desirable type nor of proper size. And it is not used as frequently as it should be. The globe should not be less than sixteen inches in diameter, and the globe

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[5] James Fairgrieve-Geography in School

A slate-surfaced globe
(Courtesy of George Philip & Son and Orient Longmans Private Ltd, Calcutta)

suspended from the ceiling is better than one mounted on a pedestal. If the former type is used, make sure your own country is on the top. The slate-surfaced globe is very useful because it can be drawn upon according to the specific need.

PHOTOGRAPHS AND STILL PICTURES

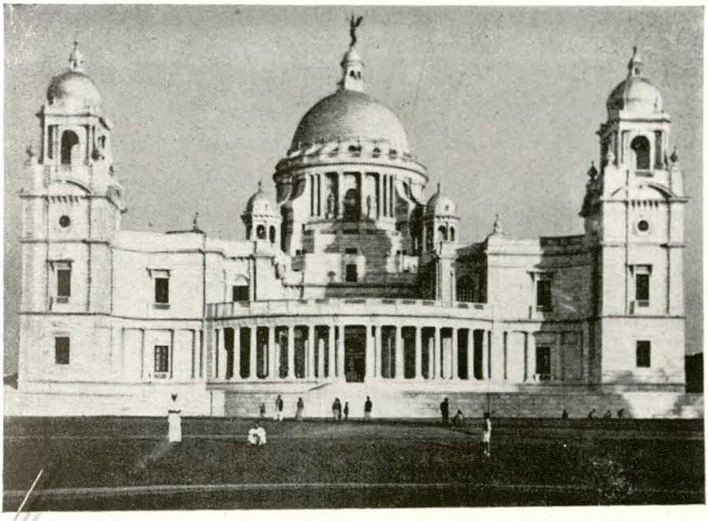
A picture is a convincing evidence

Valuable as the map or the globe is, there are occasions when the use of a photograph or a picture can make the

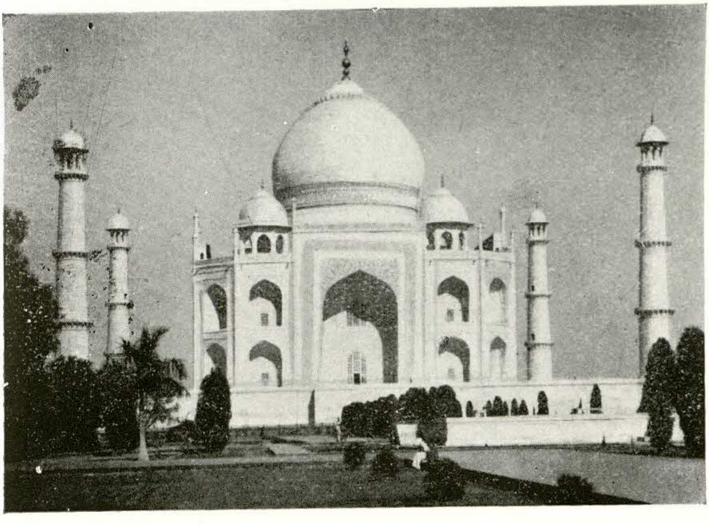
A convincing evidence to children

(Photo by the author)

topic clearer and add interest to the discussion. Children show a great interest in photographs particularly when they learn that they were taken by the teacher himself. To them a photograph is a convincing evidence. Teachers who can afford should, therefore, have a camera. There are numerous opportunities for taking pictures which can be used to good advantage in history, geography, or nature-study lessons. Excellent pictures have been made with a twenty-five rupee box camera by carefully following the manufacturer's directions. Indoor shots, however, require special lighting, fast film, and a camera with a good lens.



The use of photographs adds interest to the discussion.
(*Photos by the author*)



Pictures are inexpensive aids

Pictures cut from newspapers and illustrated magazines or obtained from commercial sources can also make a great contribution to a lesson. Many of these pictures are in no way inferior to original photographs. Picture sets available free on request from Information Services of foreign governments are particularly useful.

Pictures should be mounted, titled, and filed

Any photograph or picture worth using should be mounted on a thin cover. Mounting will prevent damage and facilitate filing and storage. In mounting a picture care should be taken to prevent it from curling when the paste dries. A simple way to avoid curling is to press the mounted picture under weights for some time.

A good picture speaks for itself, but the majority of pictures used in the classroom are much more effective when they are suitably titled.

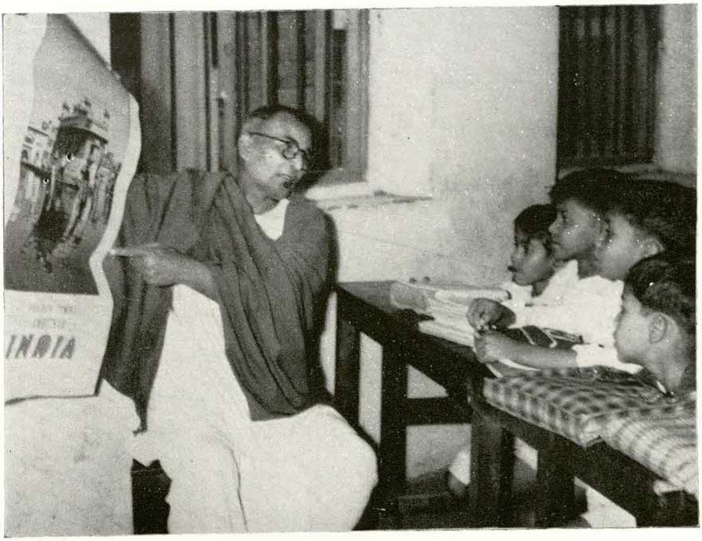
Pictures and photographs should be catalogued and filed so that those required in a lesson can be easily located. Some enterprising teachers in some of our schools take considerable trouble in collecting suitable photographs and pictures to illustrate the subjects they teach, but in the absence of a filing system many of these are lost or cannot be traced at the right time. In many cases in our schools excellent pictures are thrown into tops of almirahs only to gather dust and to be spoilt.

Pictures should be large and bright

Pictures and photographs intended for classroom exhibition should be sufficiently large and clear to be seen by all children. Many useful photographs lose their value being too small. If these are used, they should either be shown to the children individually or projected on a screen with the help of an episcope, the apparatus for the projection of opaque material.

Proper use of pictures

The effectiveness of pictures depends upon their proper selection and use. Too many pictures at a time should never be used. A few appropriate bright pictures will be more helpful. Teachers should also bear in mind that photographs



The teacher must help children to see the particular things in a picture he intends that they should see.

(A junior class in the Surendranath Institution, Calcutta)

and pictures do not always tell their own story. What the children see may be quite different from what the teacher intends that they should see. It should be remembered also that pictures do not always arouse interest in children at once. Their interest should be aroused by telling before presenting pictures what they should observe in them. In the presentation of a picture it is very important to encourage the class to put questions. Any misunderstanding on the part of the viewers can be corrected through a discussion of the picture.

Pictures in the education of villagers

Social Education Organizers should be encouraged to use photographs and pictures in their teaching programmes. They need some training in still photography. A fairly good camera and some arrangements for developing and printing should exist in the block headquarters. The photographs taken in one block can be used to good advantage in another block. By posting appropriate pictures in proper manner on village bulletin boards, they can pass on a lot of useful information to the villagers about health, agriculture, and crafts. Pictures motivate also villagers to take on a new project. When they see that a work has been done successfully under conditions similar to their own, they can face the task with greater courage and confidence.

POSTERS

Posters are widely used by almost every department of the Government and by majority of commercial firms for

Posters are widely used every year by Calcutta Police in their Safety First and Courtesy Week.

any campaign or publicity. It is difficult to find a spot on a main thoroughfare in cities like Calcutta, Bombay, or Delhi from where a poster cannot be seen.

Features of a good poster

A good poster presents a single idea and keeps it simple. Too many words should never be used on a poster. The illustration used can be anything—a picture, a cartoon, a drawing—but it should be such that it can be understood at sight. A poster must tell its story at a glance. Illustrations and captions should be large enough to be seen easily. The size of a poster should be at least 20″ × 30″. Colour is helpful though not essential. A coloured poster is generally more attractive and appealing.

The use of posters in the classroom

Although posters have a limited use in the classroom, they are of great help in providing general motivation. In the teaching of geography the attractive posters issued by Information Services of foreign governments, travel agencies, and the Ministry of Transport can be used to good advantage. The posters issued by the Ministry of Community Development can give a lot of useful information on various

Without high artistic skill but with a desire to succeed the trainees of the Social Education Organizers' Training Centre at Belur Math made these excellent posters.
(Courtesy of the S. E. O. T. C., Belur Math)

projects and activities in the country. Children get valuable information also on health and nutrition from the posters issued by the Red Cross and other welfare institutions. These posters can be obtained free on request.

Posters can also be used to motivate children to do something: 'Wash your hands thoroughly before meals', 'Take bath daily', 'Read newspapers regularly'.

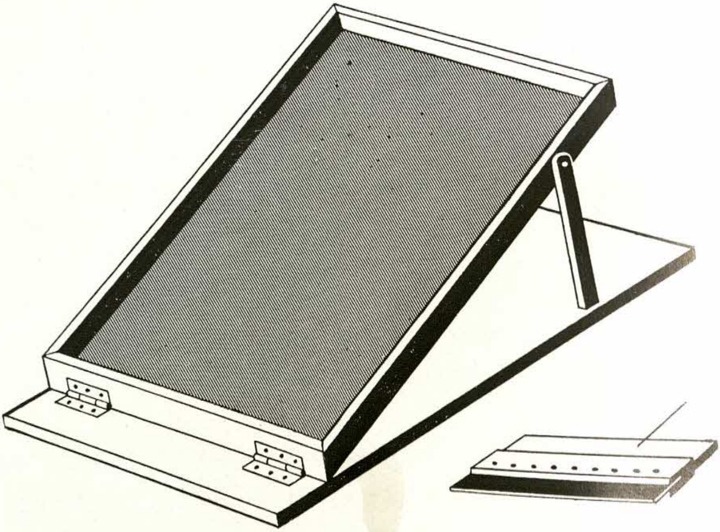
Use of posters in villages

When well-planned and well-made, posters are valuable teaching aids in villages. They are more effective when combined with other aids such as photographs, films, demonstrations.

Posters can be easily made by Social Education Organizers. They can be done even by those who cannot draw well. Only a few months ago at a Social Education Organizers' Training Centre near Calcutta almost all the trainees without high artistic skill prepared excellent posters by following a few simple tips. The person who makes the poster must of course have the desire to succeed.

Silk-screen printing

Silk-screen printing can be used for easy duplication of posters. This requires only simple equipment that can be made from inexpensive material. The frame can be made from ordinary teak wood. The squeegee with the help of which the paint is forced through the silk is just a piece of rubber between two boards. The silk for the screen and the stencil into which the design is cut can be purchased for a few rupees.



A typical silk-screen frame and the squeegee

The stencil in which the design to be printed has been cut is adhered to the silk stretched tightly on the printing frame. This covers the silk except where the paint will pass. The same silk can be used again after cleaning. For coloured posters, each colour is printed separately with the help of a separate stencil.

CHARTS

A chart can present any information other than geographical or statistical in an easy-to-understand way. It is defined as "a visual symbol for summarizing or comparing or contrasting or performing other helpful services in explaining subject matter."[6]

Important points in making charts

Like posters, little skill is necessary to make charts. In making charts the following points, however, should be remembered:

(*i*) Charts like any other pictorial material should be sufficiently large to be seen easily. The producer of charts should be clear about the conditions under which they will be seen. What is the maximum distance from which the chart will be looked at ? Is it to be studied by all the children of the class all looking at it at the same time ? Is it to be seen by a small group ?

(*ii*) Charts can tell a story in some detail but it should not contain too many words.

(*iii*) They should be attractive to look at.

(*iv*) They should be strong enough to stand rough use.

(*v*) As the main point about a chart is that it should be clearly understood by all those who are intended to study it, it should not contain any picture which is not related at all to their experience.

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[6] E. Dale—Audio-Visual Methods to Teaching.

Various types of charts

Charts may be of various types, each meeting a specific need. The important ones are given below:

Table chart

This type of charts presents information in ordinary sequence. Patients' charts in hospitals showing diet and medicines given at certain points of time and historical charts giving lists of rulers or battles in chronological order with some information as well are typical examples.

Tree chart

This is an effective way of showing development or growth of a thing. The origin is a single line or other representation of the trunk, and the various developments are shown as branches. Botanical or biological charts tracing the origin of many contemporary forms of plant or animal from a single source are good examples.

Flow chart

A flow chart shows by lines, arrows, rectangles, etc. the organization or structure of a government or a big institution.

Isotype chart

This is a pictorial representation of statistics. With its help the meaning of statistics can be made clear to people or children who are not able to get information from graphs. This device, therefore, should be of great use to schools and adult education centres.

Use of charts in connexion with other aids

When we teach with the help of charts, we follow the same principle that apply to any audio-visual aid. A chart becomes a more effective tool for learning when it is combined with other aids. A chart used with a model can often make the information clearer. Charts can be used to emphasize certain points presented in a film or a filmstrip. And there are occasions when posters and charts go hand in hand.

DIAGRAMS

A diagram is made up of lines and geometrical forms. There is no picture in it.

Diagrams are used everyday in various subjects. They are indispensable in geometry. They play an important part in science and engineering to show causal relations and structures of objects and apparatus. In the teaching of geography we frequently resort to diagrams to explain production and export or import of a commodity. In the teaching of botany we often take the help of diagrams to show cross sections of trees and plants.

Teaching with diagrams

As diagrams are abstractions, whenever possible they should be used along with the original. In nature-study, for example, if you are showing the diagram of a flower, it is better to show the class the original flower at the same time. When the real object cannot be brought into the classroom, the help of other audio-visual aids should be taken to give a complete and accurate conception of the diagram. Another important point in using a diagram is that all its items should not be shown all at once. The main outlines should be drawn first and the additional items should appear as the explanation gets on. This means that diagrams drawn in front of the class are more beneficial than those prepared before the lesson. A diagram of a complicated mechanism, however, is generally prepared in advance.

Important points in preparing a diagram

The following points should be remembered in preparing a diagram:

(*i*) The diagram should be correctly and neatly drawn to scale.

(*ii*) Tools like a ruler and a compass should be used as it is difficult to draw a good diagram freehand.

(*iii*) The diagram should be as simple as possible, and so all non-essential things should be eliminated.

(*iv*) Any important thing should be emphasized with colour, but too many colours should not be used. The objective of a diagram is to clarify meaning, not to be just a pretty picture.

(*v*) Like pictures and charts, diagrams should be sufficiently large to be seen by every student in the class.

MODELS

It has been pointed out earlier that although direct experience is the basis of all effective learning, very often it cannot be provided in the classroom. A real thing may not be always available and it may be too complex, too big, or too small for study. In such circumstances we resort to models or some other aids.

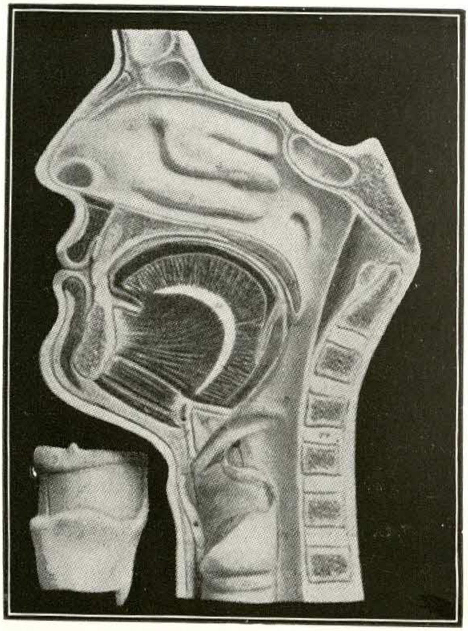
A model is a three-dimensional representation of an object. It can be handled, operated, and seen from a number of angles, and so it is generally more interesting and instructive than a picture or a chart which is a two-diamensional representation. Models are, therefore, used in the teaching of almost all subjects, e.g., science, hygiene, history, geography, and mathematics.

Types of models

Models vary greatly in form depending upon the purpose they serve. They can, however, be classified under four main types:

(*i*) Scale models

In some study situations we need correct representation of things through exactness of scale. We have small scale models of Damodar Valley and other projects to help students as well as others form a good idea of big enterprises taken up in independent India. In the teaching of hygiene we very often use exact-scale models of the organs of the human body.



A cutaway model of head, neck, and face
(*Courtesy of Calcutta Pure Drug Co.*)

(*ii*) Simplified models

There are, however, many learning situations in which models which show roughly the external form of an object do for children all right. The animals, birds, fish, rivers, hills which children of Primary Schools make out of clay, sand, or staw have great educational value although they are not made to exact scale.

(*iii*) Working models

In some lessons working models, or mock-ups, which show operation of a mechanism in a simplified manner are very helpful. In many cases they are used in place of real articles because they are easier to understand. Boys who look at working models of engines may

"......see with eye serene
The very pulse of the machine"

(*iv*) Cutaway or Cross-sectional models

These show how something looks inside. There are many situations particularly in the study of hygiene and technical subjects where it is necessary to see the interior of an organ or a machine to understand how it works.

Some misconceptions to guard against in using models

There are some misconceptions to guard against in the use of models. If the model is larger or smaller than the real thing, students should be given a clear idea of its actual size. In case of models of organs of the human body there are differences of a more vital nature, and these should be pointed out clearly. Models of the brain or the heart, for example, studied on a table are so different from the real organs which function as parts of the entire human body. Moreover, these models are likely to be thought of as parts of a machine unless we take care to emphasize that man is not a machine. "In contrived situations we resort to an analogy, and all analogies are dangerous....We can make good use of analogies offered by contrived experience if we prevent misconceptions by reminding students of both the similarities and the

Children develop their powers of expression and manual ability as they make models with clay.
(Clay modelling in a junior class in the Surendranath Institution, Calcutta)

differences between the contrivance and the real thing".[7]

Preparation of models by students

The making of models is a very useful exercise for both intelligent and backward students. Children develop their powers of expression, observation, and manual ability as they make models. Though all kinds of models cannot be made by students, we are often struck by what Primary School children do with such simple things as old newspapers, pasteboards, pasteboard boxes, match boxes, straw, and clay.

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[7] E. Dale—Audio-Visual Methods in Teaching.

OBJECTS

Objects being samples of real things though minus the natural setting are valuable learning aids. Collections of bones, claws, teeth, fish, butterflies, birds, leaves, flowers, stamps, coins, weights, minerals, stones, and agricultural products are used in the teaching of different subjects. A supply, for example, of weights and measures is essential to the proper teaching of arithmetic in infant and primary classes. Samples of agricultural products and rocks and minerals add reality to geography lessons. In nature-study children draw important inferences by studying real things like flowers, leaves, mounted birds, and live or dead insects.

With many objects, the natural setting is of great importance, but we cannot have it in any case in the classroom nor can we take our students on a tour of the world to give them a complete picture of reality. Fortunately, however, we have devices like photographs, films, and models to help them form some idea of the natural background.

PUPPETRY

. Puppetry is an old and popular art in Indian villages though its use has considerably decreased in recent years

The element of play brought into arithmetic lesson with real weights and measures makes it easier for the children to learn an arithmetic lesson in a junior class in in the Surendranath Institution, Calcutta.

These samples of rocks and agricultural products add reality to geography lessons.

on account of the popularity of films. The use of puppets is also ancient in countries like China, Japan, Siam, Egypt, and Greece. In the past twenty years this type of dramatization has grown in popularity in Great Britain and America. Several universities in America have courses in various aspects of puppetry, and in Great Britain teachers are receiving instruction in the making and playing of puppets in training colleges.

A craft worthy of revival in Indian villages

Puppetry is a craft worthy of revival in our villages. People sometimes enjoy a puppet play more than a regular drama. And a puppet play requires little in the way of costumes, scenery, and stage equipment. In it a large number of people can participate as speakers, manipulators, and makers of puppets. The making of puppets and their dresses can be a useful leisure-time activity for both men and women.

An effective audio-visual aid in schools

The craft of puppetry can be an effective aid to learning, but unfortunately little use of puppets is made by schools in India. In Great Britain and America puppet making and puppet playing are regular features of schools. It is hoped, however, training colleges in India will include puppetry in the course on Audio-Visual Education.

History, geography, composition, art and handicraft can all contribute to a puppet play. Children develop their imagination by providing the puppets with speech; they

These marionettes were made and played by the junior pupils of Woodhouse Grove School, Apperley Bridge, England.
(Courtesy of the Bronte House, Yorkshire)

increase their manual dexterity through manipulation of the figures. Great benefit can be derived also from the making of puppet figures to illustrate lessons. History lessons, for example, willga in considerably in interest if miniature figures are made to show the costume and weapons of the period under discussion. Story lessons in the Primary School become more effective when some interesting incidents are portrayed through three-dimensional figures.

Types of Puppet

(*i*) Hand-puppets

Hand-puppets are the simplest of all puppets. They fit in the hand like a glove and are operated from below by fingers.

(*ii*) Rod-puppets

These are operated from below the stage by a combination of rods and springs.

(*iii*) Marionettes or string-puppets

These are figures with movable limbs and are operated from above by means of strings.

Important points in selecting or writing a puppet play

(*i*) There should be a great deal of action in a puppet play. Children as well as adults love to see the puppets do things.

The necessity of vaccination against small-pox is stressed by means of a puppet-show (hand-puppets) in a Community Development Block in Bihar.
(Courtesy of the United States Information Services)

Rod-puppets used in the play of "Harishchandra" near Calcutta

(*ii*) The play should have plenty of music and dancing as in a regular drama.

(*iii*) The age, background, and tastes of the students should be taken into account in writing or selecting a play.

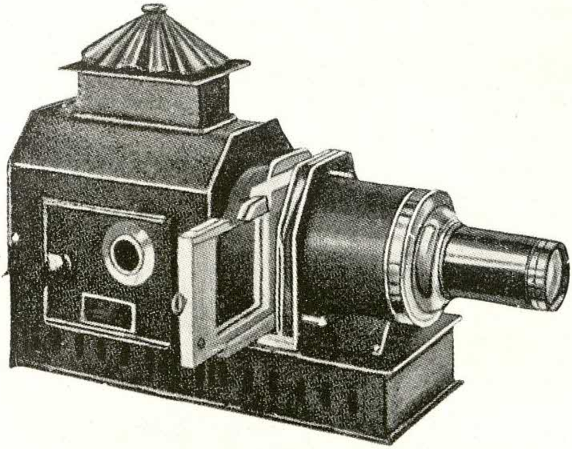
(*iv*) A puppet play should be a short one. In a long play there is a risk of showing too much action. And there is another risk—if some puppets particularly marionettes are used too much, they may get out of order.

CHAPTER VII

SOME SCIENTIFIC AUDIO-VISUAL AIDS AND THEIR POSSIBLE USES IN EDUCATIONAL INSTITUTIONS IN INDIA

THE MAGIC LANTERN (OR THE DIASCOPE)

THE magic lantern or, as it is sometimes called, the diascope has been used over a long period of years by many Indian schools and social education centres. It was invented about three hundred years ago. The material to be shown is reproduced on a transparent $3\frac{1}{4}'' \times 4''$ or $2'' \times 2''$ slide. The



This magic lantern can use acetylene gas as well as electric lamp.

(Courtesy of Calcutta Drug Co.)

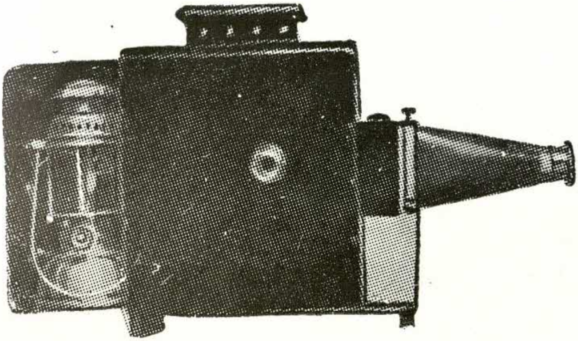
advantage of the apparatus is that its operation is very simple and it does not require complete darkening of the room. The slides are very easy also to make. The simplicity of the instrument has led some Indian manufacturers to make miniature magic lanterns to be used by children as a toy.

A useful aid in village schools in India

Though magic-lantern slides are bulky, fragile, and relatively expensive, the lantern with an acetylene or petromax lamp can prove very useful in village schools in India where no electricity is available. If the State Governments start slide libraries in district towns for issue of slides to neighbouring village schools, it will not be difficult for many village schools to use the apparatus regularly. Excellent slides both in colours and in black and white are now available at cheap rates from commercial sources and the bigger schools in villages might have their own library of slides.

Magic lantern slides in the education of villagers

As inexpensive slides of good quality are now available from commercial sources on a variety of rural welfare subjects, Social Education Organizers should be encouraged to make use of the magic lantern. Petromax magic lanterns of dependable quality are now manufactured in India and their prices are quite reasonable. These projectors have generally the device for the projection of filmstrips. Social Education Organizers should be encouraged also to make their own slides to meet specific teaching situations. Little artistic ability is required in the making of slides, but a few days' training will be helpful. It is hoped the Social Education Organizers' Training centres will include this training in the practical course on Audio-Visual Education.



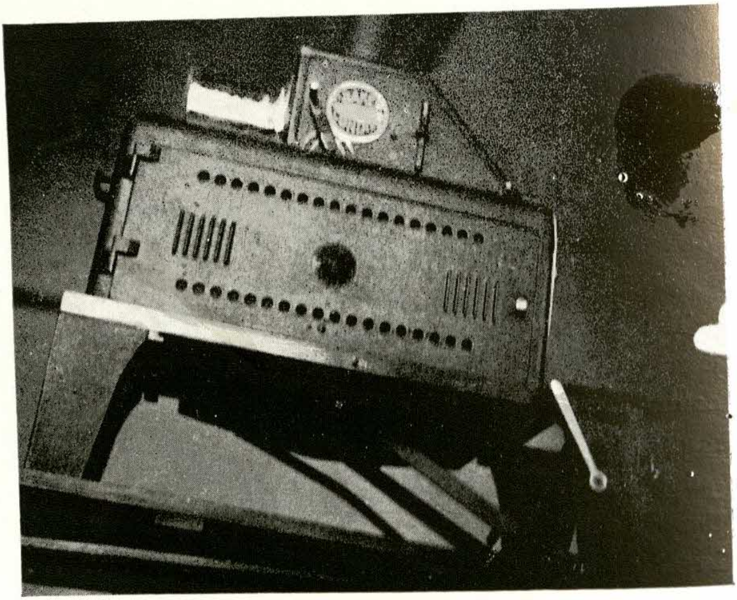
A petromax magic lantern manufactured in India
(Courtesy of Calcutta pure Drug Co.)

THE EPISCOPE

The episcope, known in America as the opaque projector, is an instrument for the projection of any nontransparent material such as pictures, photographs, maps, diagrams, coins, stamps, leaves. The principle is quite simple. The flat item is placed in the projector through an opening of about 6″×6″. Some episcopes have larger openings for the use of wider range of material. By means of a strong light and a mirror placed at 45° the image is reflected on the screen.

An aid of great educational value

The instrument is of the highest value in educational work and all schools in our country where electricity is available should have it. The great advantage of the episcope is that unlike other projectors it does not require any prepared slide or film. Anything printed, written, or drawn can be projected once the instrument has been secured. And whether for junior or senior classes there is a great mass of material in books or magazines which when projected on the screen can be of great educational value. In the Primary School, for example, a page from a book can be magnified on the screen in the classroom and all



This episcope can project flat pictures as large as 8″ × 11″.

children can read it together. When children are learning to write, some of their common errors can be pointed out by projecting samples of their writing. Many Indian periodicals now abound in coloured geographical pictures and these, when projected and magnified on the screen, can be of great help in a variety of lessons. Teachers should encourage children to collect suitable material for projection.

Although the episcope is very helpful from the educational point of view, it has some disadvantages. The apparatus is rather heavy and bulky, and so it is difficult to carry it from one room to another. This difficulty, however, can be solved by fixing the instrument in one place, e.g., the geography room or the science room. Another difficulty is that as the episcope uses reflected light, a completely darkened room is essential to its projection. This is indeed a serious disadvantage for a hot country like India, but if the room has adequate provision for ventilation, there is no reason why it cannot be properly darkened for the short period the episcope will be used.

THE EPIDIASCOPE

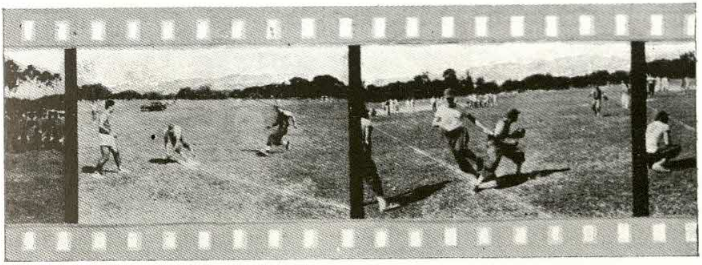
The epidiascope, as the name indicates, is a combination of episcope and diascope. Though there is some advantage in having the two instruments combined in one, the apparatus is too bulky and heavy. So it is much better to have the episcope and the diascope separately. Moreover, as the apparatus will be used mainly in towns having electricity, there may not be much use of the diascope part.

These Social Education Organizers are receiving instruction in the operation of an epidiascope.

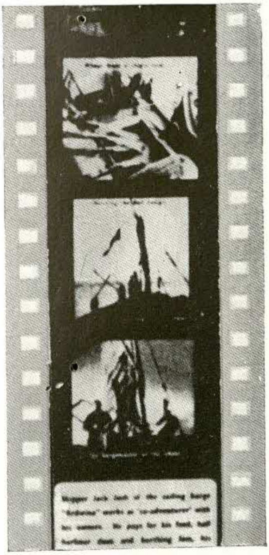
(Courtesy of the S. E. O. T. C., Belur Math)

THE FILMSTRIP

A filmstrip is the most inexpensive medium of mass communication yet devised. It is a continuous strip of 35mm noninflammable film consisting of individual frames or pictures arranged in sequence, usually with explanatory titles. The filmstrip can have as many as one



A double-frame filmstrip
(Courtesy of the United States Information Services)



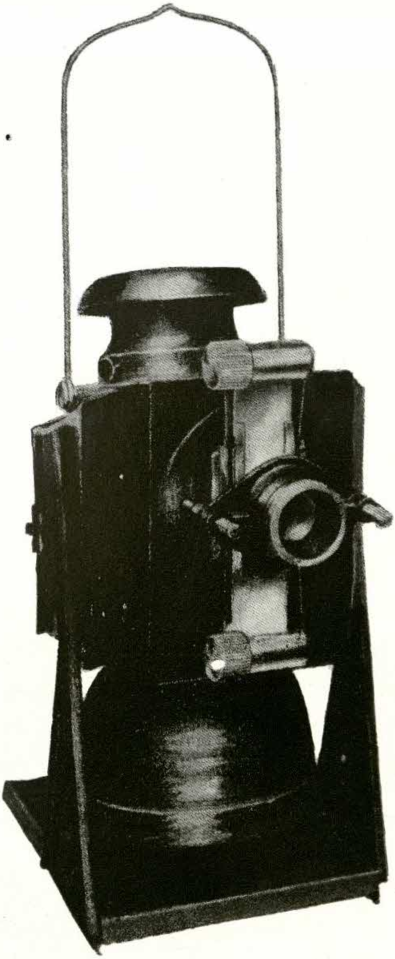
A single-frame filmstrip
(Courtesy of the British Information Services)

hundred frames, but the usual number is about sixty. The pictures may be single or double frame. In case of single frame, the picture is about $\frac{3}{4}'' \times 1''$ and in case of double, $1'' \times 1\frac{1}{2}''$. The single frame is most commonly used, and it is run through the projector vertically. The double frame picture is generally printed horizontally, and it is run through a projector horizontally. Some projectors have swivel heads so that pictures may be shown vertically or horizontally.

The filmstrip projector came into being about 1920 and has grown rapidly in popularity. It became particularly popular during the last World War when it was widely used by army training centres.

Advantages of filmstrips

The filmstrip is one of the finest learning aids and should be used by all educational institutions in India. The filmstrip projector is much cheaper than a film projector—a fairly good projector costs about Rs 350. There are now excellent filmstrip projectors with kerosene lamps for use in rural areas where electricity is not available. The filmstrip projector is not very different in principle from the old magic lantern, but its chief advantage is that instead of individual slides to be inserted or removed by hand, a strip of film containing a large number of pictures can be used mechanically. It is, therefore, much easier to use. The projector is much lighter also than the magic lantern, and the strip of film which is used in it, unlike heavy and bulky lantern slides, is light and compact. Moreover, the strip has no risk of breakage. The strips are inexpensive also, and so many schools and social education centres can easily build up libraries of those filmstrips of which they are likely to make regular use. As in the case of the magic lantern, the filmstrip projector does not require complete darkening of the room, and the strips, like the slides, can be made without much difficulty if the necessary apparatus is made available.



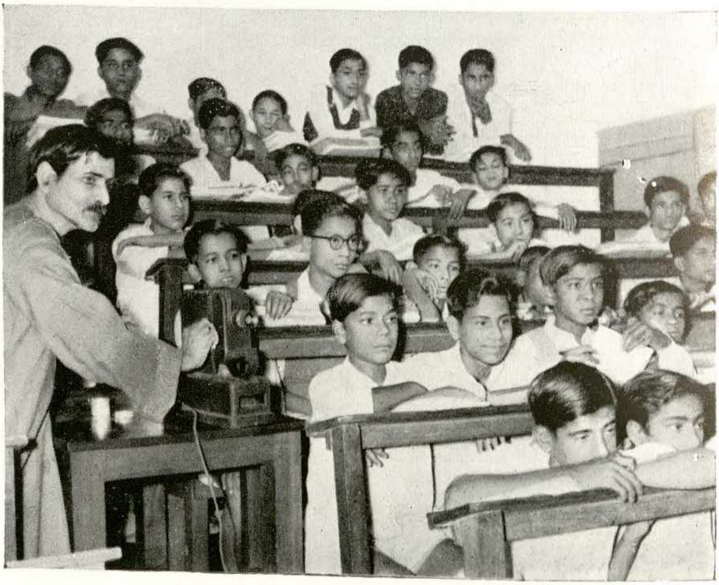
The Keroscope (a filmstrip projector with a kerosene lamp) ready for use

Using the filmstrip

Suggestions for using the filmstrip do not really differ from those already given in connexion with audio-visual aids in general. The following points may, however, be noted.

The first step in using a filmstrip is to know its content. This can be done by previewing the strip and reading the accompanying notes. The strip to be used should have definite value in relation to the topic under study. There is little point in using a strip if it just touches upon one or two unimportant points in connexion with the topic.

The strip should be properly introduced. The teacher should tell the class what the filmstrip is about, how it relates to the topic under study, why it is being shown, and what items should be particularly looked for in the strip.



The interest that a filmstrip can arouse in children is obvious here.
(A filmstrip lesson in the Secondary Department of the Surendranath Institution, Calcutta)

It is a good practice to write all the main points in the strip on the blackboard.

The strip should be properly presented. A filmstrip projector is quite a simple machine, but the person who uses it should be able to operate it with ease and confidence. It is wise to check the projector and thread the strip before the class meets. If for the sake of ventilation the room cannot be made sufficiently dark, make the picture smaller to ensure sharpness. And if the room cannot be darkened at all as it sometimes happens, increase the wattage of the bulb or the power of the lamp, make the picture smaller, and use a shadow box round the screen. A make-shift shadow box can be made of cardboard. These devices are better than rear projection with the help of mirrors. If available use a beaded screen, though it should be noted that a beaded screen is unsatisfactory for those seated at the sides of the room. Each picture should be on the screen long enough for thorough investigation. Some pictures of course make their point so quickly that only a glance is needed. Questions and discussion should be encouraged during the showing of the strip. This of course is not possible with sound strips.

The follow-up of a filmstrip can take many forms depending upon the nature of the subject. A general discussion and tests, oral or written, are usual follow-up activities. The filmstrip may be shown again if necessary to emphasize some special points. Sometimes a single frame is projected and used as a basis for written or oral composition. In some subjects particularly in the junior classes creative activities like drawing or painting are based on the filmstrip. If the filmstrip is on some technical subject involving demonstrations of skills, the follow-up should include actual practice of techniques shown. Sometimes in some subjects a filmstrip may arouse an interest in a school journey or a field trip. Since the interest and the desire to learn may not last long, such trips should be undertaken as early as possible.

Two types of filmstrip

There are two types of filmstrip—the silent and the sound. A filmstrip which has a synchronized sound recording accompanying it is called asound film strip. A faint ring of a bell indicates when the picture on the screen is to be changed.

Some disadvantages of sound filmstrips

Though recorded voice and music may arouse additional interest, the sound filmstrip has a number of disadvantages. One great disadvantage is that a picture cannot be held on the screen as long as needed unless the record or the tape is stopped. This can be done only on some expensive machines. Moreover, in many filmstrips the pictorial material contributes effectively to the interpretation of the subject matter, and when children study these strips, it is not desirable to give any explanation through a record or a talk. However, in India as the majority of schools do not possess even the ordinary strip projector, the point of using an expensive machine with record playing device or a separate record player is not worth considering.

THE FILM

Increasing use of educational films in India

Progressive educators in India have long recognized the value of films in all stages of education. Film libraries are maintained both by the Central and State Governments, and schools, colleges, universities, and social institutions are borrowing films in an increasing number. In 1954-55, 6502 films were loaned to different institutions in India by the Central Film Library of the Ministry of Education. This Library is planning to circulate to all its members Hindi commentaries of imported films so that these films are more widely and properly used. Arrangements have already been made to dub in Hindi a series of films on human physiology produced by Bray Studios, U.S.A. The Ministry of Information and Broadcasting and the Technical Co-operation Mission of America in co-operation with the Ministry of Education have taken up the production of educational films mainly on Indian history and the geography of India.

Contributions of films to learning

The ideal method of learning about anything—an industrial process, a natural phenomenon, or an important event—is to see the thing firsthand. But in many cases, as pointed out earlier, this is not possible. We must turn to indirect observation for learning, and fortunately we have so useful a means of indirect observation as the film. Even where firsthand viewing is possible one may not learn what he needs to learn on account of the non-selective and confusing nature of the situation. The firsthand experience may well need to be supplemented with a film or any other audio-visual aid.

Films can show movement

There is no other medium which can create greater interest in geography lessons than the film. Any picture of a thing is immensely better than any description of the thing through print or talk, and the film is undoubtedly the best kind of picture. But this does not mean that the film will serve the purpose of the geography learner best. Indeed in some learning situations still pictures or maps may be more effective. It is very necessary, therefore, for our geography teachers to know in what respects a film should be considered superior to still pictures. The great difference between ordinary pictures and films is that the latter can show movements, and it is this power of showing movement that makes films so valuable. "Life consists of movement, and the introduction of movement makes the presentation of anything to do with life much more real. If geography is to deal with realities, it is obvious that the introduction of movement is necessary if we are to give the children any true conception of things with which geography deals"[8]. For the study of topics such as monsoons, currents and tides, glaciers, volcanoes, days and nights, no other medium is so effective as the film.

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[8] J. Fairgrieve—Geography in School.

Films can reproduce events at a speed much greater or much less than the actual speed

The normal speed of a silent film is 16 frames per second and that of a sound film is 24 frames. For the study of certain actions which occur very swiftly, e.g., a diving performance or a kicking of a football, slow motion films can be made by increasing the number of exposures. Similarly, by decreasing the number of exposures and with the help of time-lapse photography the growth of a flower during a period of several weeks can be shown in a few minutes' time.

Films can enable children to study things which the unaided eye cannot see

With the help of a microscopic lens, it is possible to photograph objects, e.g., plants or cells which can be seen only with the help of a microscope. When these photographs are projected on the screen, the entire class can study them. Such films thus provide the classroom with the benefit of an expensive instrument like a microscope.

Films can show a process that cannot be seen by the human eye

A film can be made with the help of a series of drawings to show something which cannot be otherwise seen, e.g., how we hear, the action of molecules. Such films are no doubt expensive, but as they have great possibilities, it is hoped, the Ministry of Education will soon undertake to make some for classroom use. A demonstration of how to make such films was given by Shri G. K. Athalye, the Director, in the Audio Visual Educational Seminar organized by the Ministry of Education during May-July, 1954.

Films can show a technique from beginning to end

In many teaching situations particularly in crafts and technical training we are to demonstrate techniques and processes: how to use a tool in agriculture, how to thread a film into a projector, how to seal a bottle in fruit preservation. If films are made of these demonstrations, we can use them conveniently and effectively. Those who have demonstrated any manufacturing process know how difficult it is to arrange for the demonstration in the classroom.

Through films a technique can be followed from beginning to end.
(From the film 'Highland Farming' produced and photographed by the author at West Linton near Edinburgh in 1951)

Films can bring the distant past into the classroom

The past cannot be seen, but with the help of films we can turn the clock back. We reconstruct it in dramatic form and photograph these reconstructions. With the help of films we can see the battles on the historic field of Panipat or life in Mohenjo-Daro. Many have already seen the excellent film 'Goutama the Buddha' produced by Shri Bimal Roy with the help of dramatic reconstructions and ancient relics of India.

Films can influence attitude

Films can be used not only to increase knowledge but sometimes to bring about a change in attitudes. Films on some aspects of mines or cultivation can rouse sympathy for the miners or farmers. A film of a flooded area naturally rouses sympathy for the unfortunate people of the area. Films on some of the successful projects during the First Five-Year Plan can go a long way to increase the faith of the people in the present Government.

Some cautions in using films

An expensive aid

The film is undoubtedly an excellent audio-visual aid, but it has already been pointed out that it is an expensive aid and it should not be used if equally good results can be secured by the use of cheaper aids like filmstrips, charts, or models. A film projector costs about Rs 3,500/- whereas a strip projector costs about Rs 350/-.

Films may give wrong idea of time and size

The formation of a flower or a fruit which takes weeks to happen is shown through time-lapse films in a minute or so, and so pupils may get wrong idea about actual time taken in the growth. Again, as the film can make a very small thing appear to be of huge size there may be wrong idea of size. Some natives of South America after seeing close-ups of mosquitoes in a film remarked: "We need not worry about our mosquitoes, they are so tiny. Yours in America are indeed very large and possibly very dangerous."[9] In using films, therefore, teachers should make sure that wrong ideas of time and size have not been formed by the viewers.

The film is not always the best aid

The film is not always the best aid though certainly it is the most valuable of audio-visual aids. In some learning situations a model or a diagram may be a better aid.F or subjects which are static by their nature, filmstrips or still pictures are better aids than films. A filmstrip frame showing a house can be held on the screen for study as long as needed. It should be remembered, however, that in many teaching situations films may be profitably used to supplement another teaching aid.

The educational film

Educational films are those films which are produced primarily for instructional purposes. They are distinguished from Feature films which are made exclusively for entertainment. It is well-known, however, that many feature films have considerable educational value as they can increase knowledge and change attitudes. Films like 'Madame Curie,' 'The Story of Louis Pasteur', ''Sixty Glorious Years' are typical examples. Educational films may be classified under three main heads:

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[9] E. Dale—Audio-Visual Methods in Teaching

(*i*) Instructional films

(*ii*) Documentary films

(*iii*) Newsreels

Instructional films

These are the films to aid the learning of specific topics in the classroom in connexion with subjects such as mathematics, physics, chemistry, botany, history, geography, and hygiene. In India most of the classroom films are imported ones. The Films Division of the Government of India has lately, however, taken up the work of producing instructional films in co-operation with the Ministry of Education. There is a great shortage of films on Indian history and the geography of India, and films on these subjects are now being produced.

Documentary films

The word 'documentary' when applied to films means to teach (from Latin 'docere'). By dramatizing actual material the documentary film conveys information and creates attitudes. It tells its story in terms of human beings and human interests.

It is wrong to think that a documentary film aims at a truthful representation of a theme or an incident. As a documentary film is a purposeful shaping of actuality, it cannot be completely true. In many cases technical reasons also stand in the way of a truthful representation. Though generally the actors of the documentary film are people in real life situations, there are occasions when the help of professional actors becomes a necessity.

Robert Flaherty's *Nanook of the North* on the daily life of Eskimos in the Hudson Bay region, John Grierson's *Drifters* on Scottish herring fishing, Alberts Cavalcanti's *Rein Que Les Heurs*, a picture of French unemployment, and John Heyer's *Back of Beyond*, the story of the mail van travelling into the burning desert of Australia are some of the outstanding documentary films.

Excellent documentary films have also been made by the Films Division of the Government of India. 'Our Neighbour Nepal' 'Drums of Manipur', 'Holy Himalayas', and 'Etawah Story' are some of its well-known productions.

Newsreels

These have a definite place in education as they deal with recent events, both at home and abroad. One great difficulty in using newsreels is that they are generally produced in 35 mm. It is hoped, however, that in future 16 mm newsreels will be produced for circulation to educational institutions.

The newsreel has little in common with the characteristics of a documentary film except that they both deal with natural material. The newsreel presents in simple descriptive terms the events of the day without any colouring or bias, but the documentary film is concerned with the purposeful shaping of the newsreel material.

Films produced by commercial firms

Although films produced by commercial firms on their products or services have not been dealt with under educational films, many of these have considerable educational value. They are often in colour and are excellent in photographic quality. They are generally loaned to educational institutions free of charges.

Children's films

Thoughtful parents in India are now conscious of unhealthy influences of films shown to children by cinema houses. They are prepared to take great care to select the films which their children should see, but they find this a difficult task as there are not many films suitable for young people. But to prevent children from going to the cinema is far more difficult.

But do children really understand and enjoy films made for grown-ups ? As Mary Field has aptly said: "The plots and the characters and the motives are all outside their experience. And if they cannot understand the film on the screen, they may do one of two things. They may allow their eyes to be amused and excited while their minds remain passive and blank. On the other hand, they may become bored and noisy and a nuisance to themselves and to everyone near them. This applies equally to cartoon films, which children are usually supposed to enjoy. But if boring the child is bad, the first alternative is far worse. It is criminal to allow children who go to the cinema in order to be active and to enjoy the films to sit passively with their minds not working."[10]

Children need films made specially for them. Now, what sort of films do they like ? Little children enjoy colour and movement without caring to understand the story, but the older ones like simple short realistic plots with lots of action and music in them. Children are interested in boys and girls and so children's films should be based on the achievements of children. Again, in children's films the story must be told in pictures rather than through dialogues and commentaries.

Children's films should not be confounded with instructional films. The main objective of children's films is to provide healthy entertainment which can improve children's minds. This is indeed a kind of informal education. We have in India plenty of excellent material for children's films in Hitopadesh and in the stories of Vikramaditya. These stories undoubtedly suggest to children such noble virtues as honesty, courage, kindness, and courtesy. It is encouraging that the Government of India is alive to the great need for suitable films for children, and a Children's Film Society has been formed. The Ministry of Education in co-operation with the Films Division has taken up the production of several children's films.

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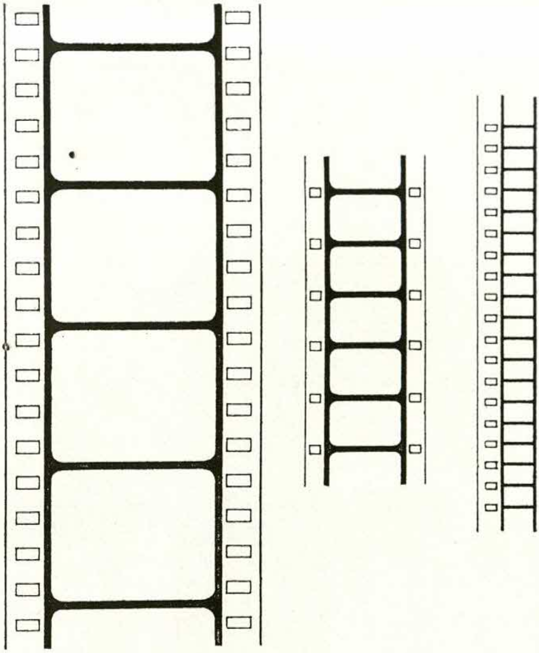
[10] Mary Field—Children's Films—a Symposium—Ministry of Information and Broadcasting, Government of India.

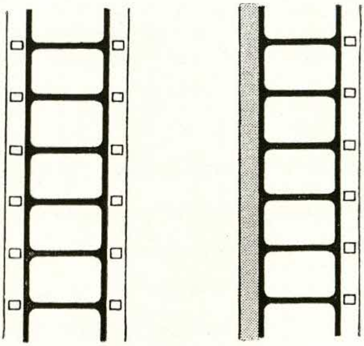
Great Britain, Russia, Czechoslovakia, and France are the early pioneers in the field of making children's films, and we have in India today some outstanding foreign productions which when screened are immensely enjoyed by children. Amongst these are *Bush Christmas*, *Fortune Lane*, *Jean's Plan*, *Bim*, *Circus Boy*, *Proud Princess*, *Boil, Boil*, *Little Pot*, and *The Boy Who Stopped Niagara*. These films have been acquired by the Central Film Library of the Ministry of Education.

Sizes and types of films

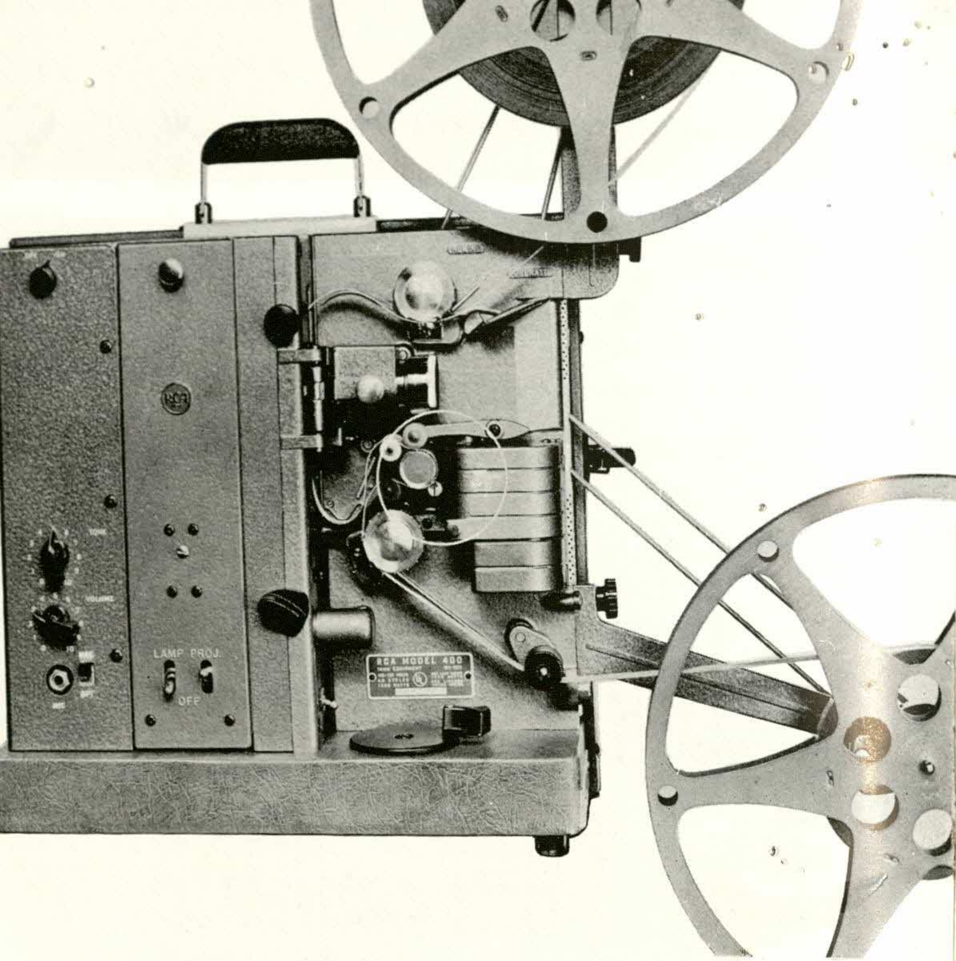
Films are of different sizes—16 mm, 35 mm, and 8 mm. The 16 mm is now generally the standard size for educational films and the 35 mm is the standard for films shown in the cinema. The 8 mm film is used by amateurs for the production of home films.



35, 16, *and* 8 *mm films*



16 *mm silent and sound films*



The R.C.A. 400 Senior 16mm Sound Projector
(Courtesy of General Radio and Appliances (Private) Limited, Calcutta)

There are silent and sound films. A great advantage of the silent film is that it can be adapted to various teaching situations as the teacher can give the appropriate talk. In the sound film, the sound is recorded on one side of the film. The main advantage of the sound film is that it makes the picture more real.

Sizes and types of projector

As there are three sizes of films, so there are three sizes of projector to use these films. And as the 16 mm film is the standard size for educational films, so the 16 mm projector has been accepted as standard for use in educational institutions.

There are silent and sound projectors as there are silent and sound films. As most of the educational films are now sound films, few institutions are now buying silent projectors. There is no difficulty in using a silent film on a sound projector.

The portable and easy-to-operate 16 mm sound projectors of today are in sharp contrast to the bulky and complicated machines of a few years ago. Any teacher can learn to operate these in two or three days' time by following carefully the manufacturers' instructions.

Operation of the 16 *mm sound projector*

The teacher should know the following:

(*i*) how to set the machine up (the projector should be placed on a sturdy table, and the distance from the front edge of the table to the screen should be about six times the width of the screen if the projector has a two-inch lens. The speaker should be placed just behind the screen at a height of about four feet from the floor);

(*ii*) how to attach the reel arms to the projector and put the spring belts on their pulleys;

These Social Education Organizers are receiving instruction in the operation of a 16mm projector.

(Courtesy of the S.E.O.T.C., Belur Math)

(*iii*) how to make connexions with the power and speaker cables;

(*iv*) how to thread the film into the projector;

(*v*) how to use the correct voltage;

(*vi*) how to turn the projector on (turn the amplifier switch on and wait till the sound lamp lights, then switch on the motor making sure that the speed selector is at the sound position and the threading is correct, and finally turn the lamp switch on);

(*vii*) how to focus (titles or other printed portions of the picture are suitable items on which to focus);

(*viii*) how to use the volume and tone controls;

(*ix*) how to tilt the machine;

(*x*) how to rewind the film with the help of the machine and with a hand rewinder;

(*xi*) how to turn the projector off (put the projector lamp off, put the amplifier switch off and bring the volume control to 'o' as soon as the sound ceases, and then after waiting two or three minutes switch off the motor;

(*xii*) how to change tubes, the projector lamp, and the sound lamp, and

(*xiii*) how to pack up the projector, the speaker, and the screen.

Care and service of the projector

The projector should never be over-oiled. It should be lubricated as advised by the manufacturer. The lubricating chart generally given in the Instructions Manual of the manufacturer should be read carefully and the instructions given should be strictly carried out.

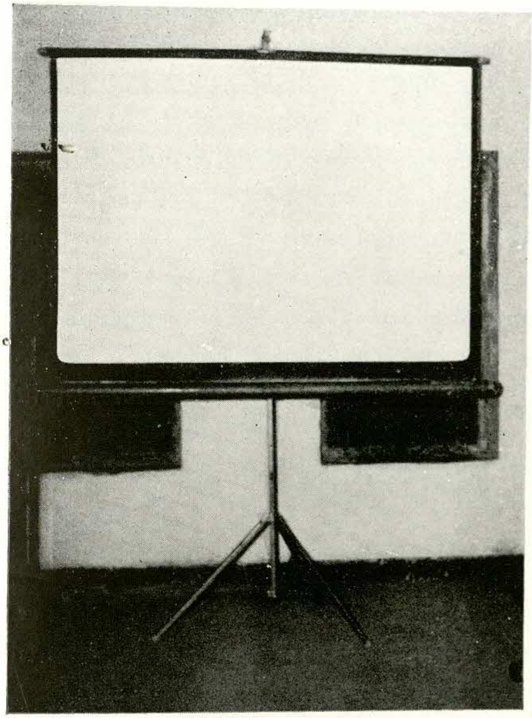
If the projector is to give consistently good service, it must be kept clean at all times. Clean all optical surfaces before each show by gently wiping them with lens tissue. Emulsion particles on the film channel should also be cleaned with a wooden scraper or some other softer-than-metal material. The power and speaker cables should be neatly coiled when not in use. It is wise to keep on hand extra bulbs, sound lamps, and tubes. The projector should be serviced once a year by a reliable firm.

Care of the film

Films should be handled carefully with clean hands by the edges. It is a very bad practice to allow films to trail on the floor. Periodically films should be checked for necessary repairs. When films become dirty, they should be cleaned by passing them between folds of cloth soaked with carbon tetrachloride.

Screens

For both classroom and outdoor screenings, a matt screen is better than a beaded one because it presents a more uniform brightness to all the viewers. A beaded screen is brighter than a matt screen only along the line from the centre of the screen to the projector.



A glass beaded screen
(Courtesy of the S.E.O.T.C., Belur Math)

The size of the screen should be such that those sitting in the last row can read the smallest type in the title of the film. The screen should be roughly 1/6 as wide as the distance from the screen to the last row. There is no harm if the screen is larger than the ratio given above. The distance between the front row of seats and the screen should not be less than two screen widths.

RADIO

One of the most valuable of audio-visual aids is radio, but unfortunately in India the number of schools using it in the classroom is disappointingly small. In spite of the inherent difficulties of radio—the broadcaster cannot be in direct touch with pupils—the A.I.R. has planned its educational broadcasts in such a manner that if they are properly utilized, they can be of considerable help to educational institutions. Under the Second Five-year Plan schemes for the development of Audio-Visual Education in India, there is a proposal to instal radio sets in all High/Higher Secondary schools.

Radio helps the cause of education in a number of ways

(*i*) It provides for educational institutions excellent performances in music and drama, performances which the schools would otherwise have never listened.

(*ii*) By means of dramatization it stimulates the interest and rouses the imagination of children so that topics in history, geography, nature study, science, literature, and other subjects are brought home to them in a manner almost impossible by any other aid.

(*iii*) The up-to-date information and news which radio brings to the classroom cannot be secured by any other means.

(*iv*) Radio can—and does—bring experts in various subjects to the classroom to assist teachers who are not supposed to have specialized knowledge in everything.

(*v*) The English programme helps both teachers and students to check up their pronunciation as well as to learn new words and modern phrases of the language.

(*vi*) Radio brings interesting variety to the classroom. Children love to listen to radio. They enjoy the novelty of another personality and the new type of approach.

Proper utilization of school broadcasts

If school broadcasts are to have their full effect, the teacher must make a proper planning for their use. The procedure follows the basic principles that apply to all audio-visual aids: selection, preparation, presentation, and follow-up.

Selection

In selecting a radio programme the teacher should make sure that it can be correlated with the classroom work. This does not mean, however, that broadcasts in connexion with outstanding events or programmes of general educational value will not be utilized. It is true a radio programme cannot be prelistened as a film can be previewed, but the illustrated school broadcasts pamphlets which are issued by the A.I.R. well in advance can give a good idea of the contents of a broadcast.

Preparation

There should be preparation for each broadcast, and this should be adequate to make the broadcast meaningful.

The excellent pamphlets on school broadcasts, often admirably illustrated, issued months ahead by the A.I.R. should be carefully studied by the teacher so that he can excite the class about what is to come from the receiving set. Unless children are made to wait expectantly there may not be much real listening.

Presentation

One reason for failure to obtain the maximum benefit from a broadcast is poor reception. Schools should make sure that the receiving set is of the right type and is in order. Regular servicing will help to improve the standard of reception to a great extent. The programme should be tuned in promptly depending on a reliable watch. The volume should be adjusted before the boardcast begins. The receiving set should be placed in front of the class so that all in the class can see the source of sound. The part of the teacher during the reception is of great importance. He himself must be alert and interested for his attitude is an important visual aid to the broadcast.

Follow-up

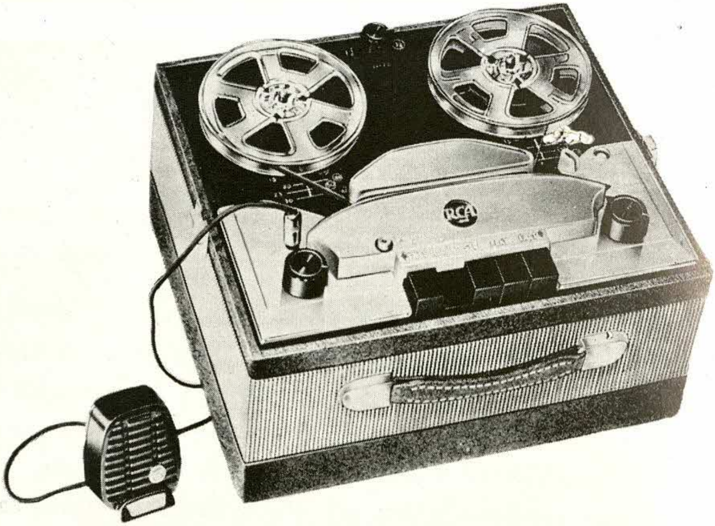
The follow-up work is an important part of the school broadcast and it may vary according to the nature of the subject. Generally, important points are emphasized and there is a discussion on the broadcast. Sometimes students are referred to books or pictures on the subject. They are asked to look up dictionaries for new words used, and if there are geographical references, these are pointed out on the map. If the aim of the broadcast is to convey information, some testing of factual knowledge may be required. In certain subjects particularly in the junior classes children may be asked to express with paint or crayon what they have listened.

Timetable difficulties with ragard to school broadcasts and their solution

Although the A.I.R. announces its programme months ahead, educational institutions often find difficulties in synchronizing their timetable with that of the School Department of the A.I.R. There is a way, however, to solve the problem. If tape recordings of school broadcasts were available to schools, and if they were subsidized to secure the apparatus to play back these recordings, much greater use would be made of the excellent school broadcasts of the A.I.R.

TAPE RECORDERS

One of the most valuable of school apparatus is a tape recorder. The different types of tape recorders on the market vary greatly in price. The expensive one may well be considered as being beyond the means of most of our schools, but there are inexpensive sets which are very easy to operate and have fairly good reproductive qualities. With the help of a tape recorder, a recording can be made continuously for two hours, used, erased, and the tape used again. An important recording can be saved to be used whenever needed.



The R.C.A. Push-Button Tape Recorder
(Courtesy of General Radio and Appliances (Private) Limited, Calcutta)

Important points in making a recording

It is easy to make a recording with the help of a tape recorder, but the equipment should be properly used. Even the most expensive equipment will not give satisfactory results if it is not used according to the instructions given by the manufacturer. The following points are particularly important in making a recording:

(*i*) Make sure the correct distance and position for the speaker in relation to the microphone. A little experiment will help to find these out.

(*ii*) Speak in a clear and natural conversational manner. There is no need to speak at the top of your voice.

(*iii*) Make sure there is no undesired noise.

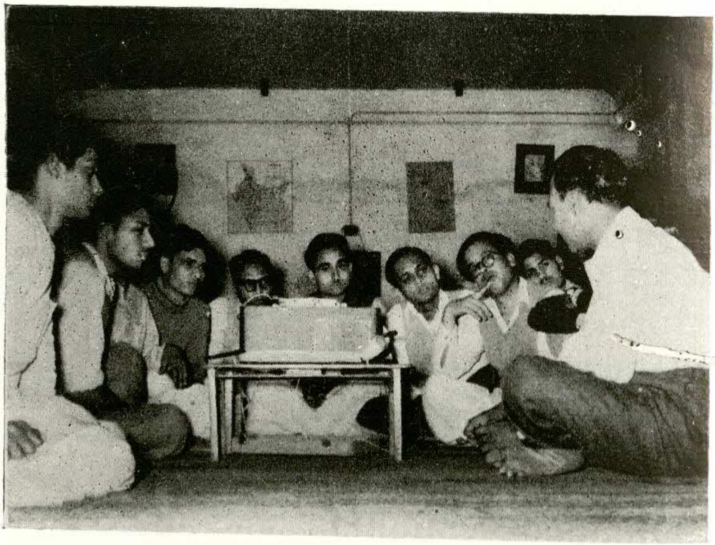
(*iv*) There should be no interruptions during recording. Some teachers fix a warning notice on the door when they record.

The use of the tape recorder in schools

One of the most valuable uses of the tape recorder is to effect an improvement in the speech of children. Complaints about defective speech amongst school children in India both in rural and urban areas are very common. The deficiencies in our voice apparent to others are not heard by us. The tape recorder by enabling children to hear the records of their voice makes them much more critical of their own speech. The use of recordings is of great help in the learning of foreign languages. In the modern language department of the University of Edinburgh students are provided with records of their own reading of a passage in a foreign language and of an educated native's reading of the same passage to enable them to realize the differences between the readings. The tape recorder can be used to good advantage in the learning of music. Learners can record their performances and then discuss their deficiencies with the teacher. They can have records of their own singing of a song and of an expert's singing of the same song and these can be played over and over again until their defects are completely removed.

The use of the tape recorder in Social Education Organizers' Training Centres

As a great deal of success in village work depends on the speaking power of the Social Education Organizers, they might have some practice in public speaking with the help of a tape recorder. This practice will stand them in good stead when they talk on slides or filmstrips or on any matter in villages. In America, Unions of workers take the help of tape recorders for speech training of their future leaders.



The tape recorder can make social workers "speech conscious."
(*Courtesy of the S.E.O.T.C., Belur Math*)

APPENDIX A

SOME AUDIO-VISUAL MATERIALS FOR USE IN DIFFERENT LEVELS AND FIELDS OF EDUCATION

I. FOR USE IN INFANT AND PRIMARY SCHOOLS

A. Filmstrips

FAIRY TALES

1. Snow white and the seven dwarfs	Oriental Photo House, Byculla, Bombay
2. Cinderella	,,
3. The ugly duckling	National Education and Information Films, Apollo Bunder, Bombay
4. The Emperor's new clothes	,,
5. Thumbelina	,,
6. The Tinder box	,,

NATURE STUDY

1. Pets and their care	The Central Film Library, Govt of India
2. Red squirrel	,,
3. Fox	,,
4. Dormouse	,,
5. Wild rabbit	,,
6. Butterflies	,,

ARITHMETIC

1.	Number for infants	The Cental Film Library, Govt of India
2.	Telling the time	,,

B. Films (16mm)

FAIRY TALES

1.	Snow white and rose red	Eng. 11 mins.	,,
2.	Cinderella	Eng. 11 mins.	,,
3.	Beauty and the beast	Eng. 11 mins.	,,
4.	Aladin and the wonderful lamp	Eng. 11 mins.	,,
5.	Sleeping beauty	Eng. 10 mins.	,,
6.	The blue light	Eng. 11 mins.	,,

II FOR USE IN PRIMARY SCHOOLS

A. Filmstrip

NATURE STUDY

1.	Water birds	
2.	Some nesting birds	,,
3.	Some desert animals and how they live	,,
4.	Sea birds	,,
5.	Flower family	,,
6.	Frogs	,,
7.	The cat	
8.	The cow	
9.	The dog	
10.	The elephant	,,
11.	The horse	,,

B. **Films (16 mm)**

FABLES AND ADVENTURES

1. Hare and the tortoise	Eng. 11 mins.	The Central Film Library, Govt of India
2. Fox and the rooster	Eng. 11 mins.	,,
3. Stray lamb	Eng. 11 mins.	,,
4. Princes and the dragon	Eng.. 9 mins.	,,

ARITHMETIC

1. The meaning of plus and minus	Eng. 11 mins.	,,
2. Addition is easy	Eng. 11. mins.	,,
3. Subtraction is easy	Eng. 10 mins.	,,
4. Multiplication is easy	Eng. 10 mins.	,,
5. Division is easy	Eng. 11 mins.	,,

NATURE STUDY

1. The growth of flowers	Eng. 11 mins.	,,
2. Our animal neighbours	Eng. 10 mins.	,,
3. Common animals of the woods	Eng. 11 mins.	,,
4. Poetry of nature	Eng. 6 mins.	,,

III. FOR USE IN HIGH/HIGHER SECONDARY SCHOOLS

A. **Filmstrips**

CIVICS AND CURRENT AFFAIRS

1. The United Nations at work	The Central Film Library, Govt of India
2. Citizenship	,,
3. F.O.A. in Asia	,,

Geography

1.	Switzerland	The Central Film Library, Govt of India
2.	Turkey	,,
3.	Australia	,,
4.	Belgium	,,
5.	Britain today	,,
6.	Burma	,,
7.	Ceylon	,,
8.	China	,,
9.	Finland	,,
10.	France	,,
11.	Germany, North section	,,
12.	Germany, South section	,,
13.	Denmark	,,
14.	East Africa	,,
15.	Ganges Basin	,,
16.	Holland	,,
17.	Modern Greece	,,
18.	Japan—Life and industries	,,
19.	Latitude and longitude	,,
20.	Malaya	,,
21.	North America	,,
22.	New Zealand	,,
23.	South China	,,
24.	South Africa	,,
25.	Sweden	,,
26.	Spain	,,
27.	West Africa	,,
28.	Egypt	,,
29.	U.S.A. East States	,,

30. U.S.A. West States	The Central Film Library, Govt of India
31. U.S.A. Middle States	,,
32. The Face of Canada	British Information Services
33. Nations of the Commonwealth—Introducing Australia	,,
34. Nations of the Commonwealth—Introducing South Africa	,,
35. Nations of the Commonwealth—Introducing New Zealand	,,
36. Sudan	,,

Chemistry

1. Carbon and its oxides	The Central Film Library, Govt of India
2. Chlorine and its compounds	,,
3. Calcium and its compounds	,,
4. Sulphur and its compounds	,,
5. Copper and its compounds	,,
6. Iron and steel	,,
7. Lead	,,
8. Sodium chloride	,,
9. Zinc	,,

Physiology and Hygiene

1. Nutrition	,,
2. Malaria	,,
3. Food and health	,,
4. Care of teeth	,,

LITERATURE

1. Hamlet	The Central Film Library, Govt of India
2. Henry V	”
3. Macbeth	”
4. Romeo and Juliet	”
5. A Midsummer Night's Dream	”
6. Introduction to Shakespeare	”

HISTORY

1. Clive	”
2. Making of modern Germany	”
3. Napoleonic wars to the 2nd World War	”
4. Roman Conquest of Britain	”
5. Nelson	”
6. Changes at the end of 18th century	”

PHYSICS

1. Atomic energy	”
2. Electricity and Magnetism-Introduction	”
3. Energy	”
4. Condensers	”

B. **Films (16 mm)**

MATHEMATICS

1. What are fractions	Eng. 10 mins.	”
2. We discover fractions	Eng. 10 mins.	”
3. Geometry and you	Eng. 10 mins.	”
4. The language of the graphs	Eng. 13 mins.	”

GEOGRAPHY

1. Four seasons	Eng. 33 mins.	The Central Film Library, Govt of India
2. Day and Night	Eng. 9 mins.	,,
3. Earth—rotation and revolution	Eng. 9 mins.	,,
4. Earth—surface and climate	Silent 12 mins.	,,
5. Volcanoes	Silent 15 mins.	,,
6. Weather	Silent 14 mins.	,,
7. Earth—latitude and longitude	Eng. 9 mins.	,,
8. Majestic Norway	Eng. 20 mins.	,,
9. Picturesque Sweden	Eng. 22 mins.	,,
10. Picturesque Denmark	Eng. 20 mins.	,,
11. Belgium	Eng. 22 mins.	,,
12. Ganga	Hindi-Eng. 11 mins.	
13. Industrial Mysore	Hindi-Eng. 23 mins.	,,
14. Suez Canal	Eng. 9 mins.	,,
15. Introducing East Africa	Eng. 20 mins.	British Information Services
16. Meet New Zealand	Eng. 40 mins.	,,
17. Beautiful New Zealand	Eng. 20 mins.	,,
18. This is Malaya	Eng. 13 mins.	,,
19. Australia	Eng. 10 mins.	The Central Film Library, Govt of India
20. British Isles	Eng. 6 mins.	,,
21. Major Industries of India —Agriculture, Textiles, Iron and Steel	—Hindi-Tamil. Telugu -Marathi. Beng. 1 hr 57 mins.	Burmah Shell

PHYSICS		
1. Sound	Eng. 10 mins.	The Central Film Library, Govt of India
2. Conduction	Eng. 7 mins.	,,
3. Radiation	Eng. 6 mins.	,,
4. Electricity and heat	Eng. 8 mins.	,,
5. Atomic energy	Eng. 11 mins.	,,
6. Laws of Motion	Eng. 12 mins.	,,
CHEMISTRY		
1. Colloids	Eng. 11 mins	,,
2. Molecular theory of matter	Eng. 11 mins.	,,
3. Oxygen	Eng. 10 mins.	,,
4. Colour	Eng. 16 mins.	,,
5. Catalysis	Eng. 11 mins.	,,
6. Crystal	Eng. 7 mins.	,,
BOTANY		
1. From flower to fruit	Silent 15 mins.	,,
2. How plants feed	Eng. 10 mins.	,,
3. Leaves	Eng. 11 mins.	,,
4. Roots	Eng. 10 mins.	,,
5. Pollination	Eng. 8 mins	,,
6. The life cycle of maize	Eng. 10 mins.	British Information Services
PHYSIOLOGY AND HYGIENE		
1. Action of the human heart	Silent 6 mins.	The Central Film Library, Govt of India
2. The human body	Eng - Hindi - 9 mins.	The United States Information Services

3. How the respiratory system functions	Silent 14 mins.	The Central Film Library, Govt of India
4. Nose, throat, and ears	Eng. 10 mins.	,,
5. Digestion of foods	Eng. 11 mins.	,,
6. Work of the kidneys	Eng. 11 mins.	,,
7. How we hear	Silent 6 mins.	,,
8. How we see	Silent 8 mins.	,,
9. The nervous system	Eng. 11 mins.	,,
10. Sleep for health	Eng. - Hindi 12 mins.	,,
11. How disease travels	Eng. - Hindi-Bengali 10 mins. (from Calcutta)	United States Information Services
12. Insects as carriers of disease	Eng. - Hindi-Bengali 10 mins. (from Calcutta)	,,
13. Understanding Vitamins	Eng. 15 mins.	The Central Film Library, Govt of India
BIOLOGY		
1. Introduction to biology	Eng. 13 mins.	,,
2. Romance of life	Silent 14 mins.	,,
3. The earlier and simpler forms of life on earth	Silent 10 mins.	,,
4. The toad	Eng. 7 mins.	British Information Services
HISTORY		
1. Medieval England	Eng. 10 mins.	The Central Film Library, Govt of India
2. Stuart Britain	Eng. 10 mins.	,,
3. Six years of freedom (India)	Eng.-Hindi 13 mins.	,,

C. **Picture sets**

GEOGRAPHY

1. Hongkong	12 pictures	British Information Services
2. Introducing Australia	20 ,,	,,
3. South East Asia	12 ,,	,,
4. East Africa	12 ,,	,,
5. Malaya	12 ,,	,,

HISTORY (Great Britain)

1. Britain in 17th Century	12 ,,	,,
2. Tudor England	10 ,,	,,
3. Britain 1900-1950	24 ,,	,,

D. **Slides**

GEOGRAPHY

1. Australia	6 Slides	Calcutta Pure Drug Co., Calcutta I
2. Canada	8 ,,	,,
3. New Zealand	8 ,,	,,
4. S. Africa	8 ,,	,,
5. Picture of physical phenomena	25 ,,	,,
6. The British Isles	50 ,,	,,
7. North America	50 ,,	,,
8. Asia	100 ,,	,,
9. Europe	50 ,,	,,
10. Africa	50 ,,	,,

HISTORY OF INDIA

1. Pre-historic India	20	,,	Calcutta Pure Drug Co., Calcutta I
2. Vedic India	20	,,	,,
3. Buddhist India	50	,,	,,
4. Medieval India—Advent of the Muslims	50	,,	,,
5. India under the British	50	,,	,,
6. Rise of the Maratha power	20	,,	,,

IV. FOR USE IN TEACHERS' TRAINING INSTITUTE

A. **Filmstrips**

1. Education in Britain	The Central Film Library, Govt of India
2. Growth of visual education Part I	,,
3. Growth of visual education Part II	,,
4. Picture reader for children	,,
5. Nursery schools	British Information Services
6. Century of progress in elementary education (British)	,,
7. Teaching techniques Part I	The Central Film Library, Govt of India
8. Teaching techniques Part II	,,

B. **Films (16 mm)**

1.	Motivating class	Eng. 19 mins.	The Central Film Library, Govt of India
2.	Problem of pupil adjustment	Eng. 20 mins.	,,
3.	Teachers in the making	Hindi-Eng. 32 mins.	,,
3.	Testing intelligence with the Standford-Binet	Eng. 18 mins.	,,
5.	Testing the I.Q.	Silent 15 mins.	,,
6.	Audio-visual aids to learning	Eng. - Hindi-Bengali 13 mins. (from Calcutta)	United States Information Services
7.	Broader concept of method: developing pupil interest	Eng. 13 mins.	,,
8.	Broader concept of method: teacher and pupils planning and working together	Eng. 19 mins.	,,
9.	Maintaining classroom discipline	Eng. 14 mins.	,,
10.	New tools for learning	Eng. 19 mins.	,,
11.	Double thread	Eng. 33 mins.	British Information Services
12.	The three A's	Eng. 19 mins.	,,
13.	Children's charter	Eng. 18 mins.	,,
14.	Home and school	Eng. 20 mins.	,,
15.	Tips for teachers	Eng. 20 mins.	,,
16.	Bring the world to the classroom	Eng. 22 mins.	,,
17.	How to make handmade lantern slides	Eng. 22 mins.	,,

18. Facts about film	Eng. 10 mins.	The Central Film Library, Govt of India
19. Using the classroom film	Eng. 22 mins.	,,
20. Basic education	Hindi 10 mins.	,,
21. Sound recording and reproduction	Eng. 11 mins.	,,
22. Audio-Visual Education Seminar—1954	Silent 24 mins.	,,
23. Puppetry-string marionettes	Eng. 10 mins.	,,

V. FOR USE IN SOCIAL EDUCATION CENTRES

A. Filmstrips

HEALTH AND HYGIENE

1. Food and health	The Central Film Library, Govt of India
2. First aid	,,
3. Malaria	,,
4. Cholera	,,
5. Leprosy	,,
6. Tuberculosis	,,

AGRICULTURE

1. Compost making	,,
2. Land	,,
3. Rice	,,
4. Wheat	,,
5. Irrigation	,,
6. Jute fields	,,

B. **Films (16 mm)**

Health and Hygiene

1. Before the baby comes	Eng. 30 mins. (from Calcutta)	United States Information Services
2. Cleanliness brings health	Eng. - Beng.- Hindi 10 mins. (from Calcutta)	,,
3. Clean water makes good health	Eng. - Hindi- Bengali 11 mins. (from Calcutta)	,,
4. Care of the eyes	Eng. - Hindi- Bengali 21 mins. (from Calcutta)	,,
5. How to have a healthy home	Eng. 17 mins.	,,
6. Malaria control	Eng. - Bengali- Hindi 27 mins. (from Calcutta)	,,
7. They need not die	Eng. - Bengali- Hindi 16 mins. (from Calcutta)	,,
8. Your baby can be healthy	Eng. 16 mins.	,,
9. Your health centre	Eng. - Hindi 8 mins. (from Calcutta)	,,
10. Arrest leprosy	Eng.-Hindi 12 mins.	The Central Film Library, Govt of India
11. Hookworm	,, 10 mins.	,,
12. The marked man	,, 12 mins.	,,
13. Mosquito menace	,, 11 mins.	,,
14. What is disease ?	,, 12 mins.	,,

AGRICULTURE

1. How to control pests	Eng. - Hindi-Oriya (from Calcutta)	United States Information Services
2. How to grow more paddy	Eng.-Hindi-Beng.-Oriya-Assamese 22 mins. (from Calcutta)	,,
3. Improved seed	Eng.-Beng. 16 mins. (from Calcutta)	,,
4. Life for the land	Eng.-Hindi-Bengali 21 mins. (from Calcutta)	,,
5. Magic of the egg	Eng.-Beng.-Hindi 15 mins. (from Calcutta)	,,
6. More profit from goats	Eng. 12 mins. (from Calcutta)	,,
7. Planning for plenty	Eng.-Hindi-Bengali 13 mins. (from Calcutta)	,,
8. Time is money	Eng. 10 mins. (from Calcutta)	,,
9. White Manure	Hindi-Eng. 11 mins. ..	The Central Film Library, Govt of India

Co-operation

1. Shoulder to shoulder	Hindi 11 mins	Films Division, Ministry of Information and Broadcasting, Govt of India
2. Co-operative farming	Hindi-Eng. 11 mins.	,,
3. The Etawah story	Eng.-Hindi 11 mins.	,,
4. Our milk co-operative	Eng. (from Calcutta)	The United States Information Services
5. Triumph in the wilderness	Eng.-Beng-Hindi (from Calcutta)	,,
6. Kubauliram	Eng.-Hindi-Tamil-Telugu-Malayalam-Marathi-Gujarathi-Kanarese-Bengali 28 mins.	Burmah-Shell
7. The weavers of Maindargi	Hindi-Tamil-Telugu-Bengali-Kanarese 25 mins.	,,

Crafts

1. Spirit of the loom	Hindi 11 mins.	The Central Film Library, Govt of India
2. Busy hands	Hindi 10 mins.	,,
3. Suds	Hindi-Eng. 9 mins.	,,
4. Potteries	Hindi-Eng. 11 mins.	,,
5. Tree of wealth	Hindi-Eng. 10 mins.	,,

C. Slides

Agriculture

1. Japanese methods of paddy cultivation	30 slides	Calcutta Pure Drug Co., Calcutta
2. Wheat cultivation	30 slides	,,
3. Potato cultivation	30 slides	,,
4. Rotation of crops	12 slides	,,
5. Agriculture and modern implements	40 slides	,,
6. Agriculture and manure	30 slides	,,
7. Tomato culture	30 slides	,,
8. Sugarcane cultivation	30 slides	,,

Health and Hygiene

1. Drama on malaria	20 slides	,,
2. How to prevent cholera	12 slides	,,
3. Impure water and water-borne diseases	26 slides	,,
4. Co-operative health organization	28 slides	,,
5. Our food	30 slides	,,

VI. FOR USE IN LABOUR WELFARE INSTITUTIONS AND FACTORIES

Films (16 mm)

1.	Welfare for the workers	Hindi-Eng. 11 mins.	The Central Film Library, Govt of India
2.	Safety first	Hindi 11 mins.	,,
3.	Recreation for factory workers	Eng. 20 mins.	United States Information Services
4.	Safety in the shop	Eng. 11 mins.	,,
5.	Factory safety	Eng. 10 mins.	,,
6.	Lifting	Eng. 9 mins.	British Information Services
7.	Watch your step	Eng. 14 mins.	,,
8.	Factory Inspector	Eng. 13 mins.	,,
9.	The man who stops accidents	Eng. 13 mins.	,,

APPENDIX B

Bibliography

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4. Audio-Visual Methods in Teaching—Edgar Dale (The Dryden Press, New York)
5. Visual Methods in Education—W. L. Sumner (Basil Blackwell, Oxford)
6. Visual Aids—Weaver and Bollinger (D. Van Nostrand Co., New York)
7. Visual Education—Freeman (University of Chicago Press)
8. Visual Education and the New Teacher—G. P. Meredith (Daily Mail Publications, London)
9. Filmstrips—Vera M. Falconer (Mc Graw Hill Series)
10. Filmstrips—National Committee for Visual Aids in Education, London
11. Filmstrips and Slide Projection—Kidd and Long (Focal Press)
12. Audio-Visual Material in Teacher Education—Association for Student Teaching, Pennsylvania

13. Visual and Aural Aids—A Report of the Advisory Council on Education in Scotland, 1950

14. Planning a Visual Education Policy—National Committee for Visual Aids in Education, London

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18. Geography in School—James Fairgrieve (University of London Press)

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21. The Film as an Educational Force in India—Marie Seton (Ministry of Education, Govt of India)